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PROLONGED POST-TRAUMATIC SYNDROMES FOLLOWING HEAD INJURY[1]

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The present article reports the results obtained in a systematic study[2] of prolonged post-traumatic syndromes occurring in the civilian population, primarily after domestic, traffic and recreational accidents (closed head injuries). An attempt is made to evaluate the psychological and physiological problems involved in cases with delayed recovery from head injuries by comparing the late traumatic cases to patients with brain disease, acute head injuries and non-organic psychoneuroses. While for review of the literature on these subjects, reference will be made to two previously published articles (32, 35), analysis of present day knowledge on post-traumatic syndromes seems to indicate that primarily three factors have to be considered: the pre-traumatic personality and constitution, the physical trauma resulting in brain damage with all its sequelae, and the psychological trauma resulting in fear and anxiety. It is the purpose of this study to identify the components contributing to post-traumatic syndromes, to formulate criteria for their evaluation and recognition, and to investigate the results of the mutual interaction of these factors.

CASE MATERIAL AND PROCEDURE

Statistical data, isolated observations, inferences and conclusions reported in this paper were based on the study of 125 cases with late post-traumatic syndromes. It was felt that some of the questions could be answered more satisfactorily if the results were compared with data obtained from other groups of patients. Thus, 140 control cases were studied which were classified in three groups:

(1) 70 cases with acute head injuries.

(2) 30 cases with brain disease (not related to head injury).

(3) 40 cases with psychoneuroses with no history of head injury.

The criteria for deciding whether a head injury had occurred were: loss of consciousness following trauma, skull fracture or scalp lesion. The choice of cases with brain disease was based on the presence of neurological signs. The criteria for the diagnosis of psychoneurosis were high scores in the neurotic scales of the Minnesota multiphasic personality inventory, and the presence of physical complaints.

The five groups of cases studied were characterized as follows:

1. *Chronic Head Injuries with Signs of Brain Damage.*—In subsequent paragraphs "chronic" refers to 58 patients who were examined three months or more after the accident. The presence of brain damage was determined by neurological and psychiatric examination. Signs such as convulsions, pathological reflexes, inequality of tendon or cutaneous reflexes, cranial nerve palsy, bloody spinal fluid, or disorientation and confusion were taken as evidence that there had been brain damage. The mean age was 33, varying from 9 to 62 years. Fifty subjects were males, 8 females.

2. *Chronic Head Injuries without Signs of Brain Damage.*—The mean age of the 67 patients studied was 32, ranging from 14 to 38 years. Forty-nine subjects were males, 18 were females.

3. *Acute Head Injuries.*—In subsequent paragraphs "acute" refers to patients who were examined within four weeks of the accident. The mean age of the 70 patients was 47, ranging from 15 to 85 years. Sixty subjects were males, 10 females. Forty-two of the patients had neurological signs after termination of the initial coma; 30 had linear or basilar skull fractures, while one case had a depressed fracture; 3 developed subdural hematoma verified by operation.

4. *Cases with Brain Disease.*—The mean age of the 30 patients studied was 40, rang-

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[2] The work described in this paper was done under a contract recommended by the Committee of Medical Research, between the Office of Scientific Research and Development and the University of California Medical School.

ing from 15 to 63 years. Twenty-one subjects were males, 9 were females. The diagnostic distribution was as follows: 4 cerebral arteriosclerosis with focal signs, 3 neurosyphilis, 3 subarachnoid hemorrhage, 3 frontal lobectomies following abscess and trauma, 6 brain tumors (2 astrocytomas, 2 hemangiomas, 1 pituitary tumor, 1 ependyma), 2 alcoholic encephalopathies, 2 hypertensive encephalopathies, 2 convulsive disorders, 2 senile dementias, 1 multiple sclerosis, 1 Little's disease, 1 chronic encephalitis.

5. *Psychoneuroses.*—The mean age of the 40 cases studied was 34, ranging from 10 to 61 years. Twenty-two subjects were males, 18 were females. The case material was composed of three cases with psychosomatic reactions (2 mucous colitis, 1 atopic dermatitis), and 2 cases with periodic alcohol addiction, while all the other patients fell into the classification of hypochondriasis, hysteria and reactive depression.

Some of the tests were carried out in a smaller number of patients only. The characteristic features of these smaller samples, however, were about the same as those described above.

The Pre-Traumatic Personality of Chronic Head Injuries

The first step in the investigation of late post-traumatic syndromes was directed at the investigation of the pre-traumatic personality in order to determine whether there exist features which make certain individuals more susceptible to trauma than others. Since this aspect was described in detail in a previous publication(35), only a brief summary will be mentioned here:

The mean age of subjects suffering from civilian head trauma is given in the majority of the statistics as falling between the ages of 30 and 40, if the first decade is excluded. Comparison of the ages of our chronic cases with the percentage distribution of the population of the United States in 1940 and with the data of Pilcher and Angelucci(27) uniformly shows that, post-traumatic syndromes occur in all age groups and that the frequency of occurrence is roughly proportional to the figures of the population at large.

The sex distribution of our patients shows that injuries to the head occur predominantly in males, which distribution coincides with those given in the literature. Both our acute and chronic cases show a ratio of 4 males to one female. This predominance of accidents in males finds its explanation in the more sheltered life of women, in the greater frequency of male drivers, and in the greater incidence of alcoholism, sport activities and fights in males.

The past history of our patients showed remarkable differences between the acute and chronic cases (Ruesch *et al.*)(35). The acute cases exhibited features which can best be summarized under the heading of social and overt maladjustment, which is a function of membership in the lower social classes. The chronic cases, on the contrary, were socially better adjusted and derived from the middle class. They showed, however, a much larger incidence of neuropathic traits in childhood: temper tantrums, truancy, delinquency, enuresis, fears, anxiety, obsessions, compulsions, stammering or stuttering. About one-fifth of the chronic cases had to be classified as alcoholic, as compared to more than half of all patients in the acute cases. Included in this last figure were subjects who frequently were drunk, who were addicts, and who acquired physical or mental disorders as definite consequences of many years of heavy drinking.

The physical state of health is an important factor in accidents. In our series, a number of cases were suspected of having had brain disease, before the injury such as alcoholic or hypertensive encephalopathy and cerebral arteriosclerosis. However, it is often difficult to prove this point, since patient and relatives are likely to blame all disability on the injury. Twenty-five percent of the chronic cases had suffered preceding head injuries with loss of consciousness or scalp wounds, and the brain damage incurred on these occasions made them obviously more accident-prone than before. The fact that a one-time accident makes a subject liable to future accidents (law of recurrence) has been shown in several studies (Vernon) (41). It is probably an expression of some distinct character features present in the personality of these accident repeaters, whom Adler(1) describes as resentful, unhappy and unlucky, dependent, over-ambi-

tious, over-fearful, alcoholic, feeble-minded and afflicted with organic brain disease. In our series of 31 patients with repeated head injuries and chronic post-traumatic syndromes, we found essentially the same features. These repeaters, however, resembled our acute cases with social maladjustment more than the post-traumatic syndromes with their primarily neurotic problems. About two-thirds of them had neurological signs, and all but 4 had scars on their bodies from previous injuries. In view of these findings, it seems likely that social maladjustment and brain damage are more frequently responsible for repeated head injuries than neurotic trends.

Both acute and chronic head injuries illustrate the relationship between personality and proneness to head trauma. Although all individuals are exposed to a variety of dangers at some time during their life, there seem to exist certain character features which determine whether an individual will successfully avoid approaching danger or will be injured. For example, middle aged and old subjects with their slowed and perhaps dulled reactions are more accident-prone than younger people. Acute intoxication or brain damage due to chronic alcoholism or previous head injuries are factors which favor accidents. The lack of family ties, as evidenced by the great number of elderly and single, or divorced and childless individuals may lead to carelessness and overexposure to dangers of life. The neurotic individual with a history of fear and anxiety may be so preoccupied with himself that he does not pay enough attention to his surroundings, he disregards the signs of imminent danger and omits the customary precautions. Also, there are some individuals who enjoy meeting vital threats and who, therefore, recklessly expose themselves and actively seek danger.

Our acute patients were characterized by overt or social maladjustment, and unless compensation problems were involved, none of these cases developed protracted post-traumatic syndromes. The chronic cases, on the contrary, had few of the features of social maladjustment, but were characterized by covert maladjustment with permanent conflicts and neurotic trends. Therefore, one must conclude that prolonged post-traumatic syndromes due primarily to civilian and non-industrial accidents, affect a selected population which is characterized by a variety of personality disturbances. Evaluation of protracted post-traumatic syndromes thus has to start with the study of the personality of the patient before the effects of the injury itself can be established.

The Individual Circumstances Surrounding the Accident

Sufficient information has been gathered (Vernon)(41) in the literature to show that road accidents, for instance, are dependent on lighting, speed, seasons, time of day, or day of week, on the type of pavement used, and on many other factors. Except for the problems of alcoholism and convulsive disorders, little is known of the victim's mental disposition before the accident. Retrograde amnesia and the tendency to make circumstances and other people responsible for the occurrence of accidents, are the cause of this ignorance. Nevertheless, one is inclined to ask what made this accident happen just on that day, at that given hour, and not at another time. If the previously discussed personality features are the base for the accident-proneness in general, there must exist some factors which precipitate the accident at a certain moment. Study of the place of occurrence, the mechanism of the accident, and the state of mind immediately preceding the injury may partly answer the question formulated above.

Place of Accident and Mechanism of Injury

The vast majority of accidents occur on the street. In 1940 alone, 1,320,000 persons were injured in the United States in traffic accidents. Therefore, it is not surprising that about one-half of our cases derived from traffic and street accidents, and only one-fourth from industrial accidents (Table 1). According to Brain(7), the incidence of post-traumatic syndromes is higher in industrial cases than in road accidents, which fact is expressed in our series very clearly. It also seems of interest that fights and barroom accidents were fewer in post-traumatic

syndromes than in acute cases, an observation which falls in line with the fact that the accidents which lead to post-traumatic syndromes are usually mild and not severe (see Table 2). Analysis of the mechanism of the injury did not reveal significant differences between acute and chronic cases.

STATE OF MIND IMMEDIATELY PRECEDING THE ACCIDENT

Alcoholism is known to be a major factor in the causation of accidents. The statistical bureau of the National Safety Council (9) thus reports that in one out of every 5 fatal traffic accidents during 1939, a driver or pedestrian was reported as having been drinking. It is therefore the more striking that alcoholism at the time of the accident

TABLE 1

PLACE OF ACCIDENT

	Head injuries	
	Acute N = 70	Chronic N = 125
	Frequency in percent	
At place of employment.....	9	24
On the street and in traffic....	55	45
At home	7	9
At play or sports.....	7	15
In bars or fights.....	22	7

is very infrequent in subjects who develop post-traumatic syndromes. While in our acute series, 62 percent of the subjects were inebriated or intoxicated at the time of the accident, only 6 percent of the chronic cases gave a history of alcoholism at the time of the injury. Even if a margin should be allowed for those subjects who did not speak the truth, the difference, nevertheless, remains striking. These findings are consistent with the figures of Table 1, showing that only 7 percent of the chronic cases suffered their injuries while fighting, usually after a drinking bout.

In about one-fourth of our chronic cases the subjects were known to have been in an abnormal state of mind preceding the accident. If 6 percent of these conditions are related to alcoholism, other case histories gave no evidence of intoxication: The girl who jumped out of an automobile in order to irritate her mother because she was not allowed to go out to a dance; the youngster who fell off a horse in protest against his over-protective mother after he had been forbidden to ride; the man who had been unfaithful to his wife and dreaded the return home, are but a few examples. Ranging from acute panic to chronic preoccupation, there is a gliding scale of emotional conditions which predispose and lead to accidents. While in retrospect it is often difficult to determine how disturbed the patient was at the time of the injury, we were able to find in the second fourth of our chronic cases evidence of recent worries, preoccupations, and personality difficulties. In a great many cases these difficulties continued well into the post-traumatic period, and thus constituted one of the reasons for delayed recovery.

Analysis of the circumstances of the accidents as a whole reveals that only the minority of the injuries were caused by accidental, unfavorable circumstances. The majority of the accidents were caused by factors which bear on the character of the injured subjects. Thus, we distinguished four main types of patients:

1. The maladjusted type, who either overexposes himself or runs greater risks because he is less able to avoid dangers. In addition to a variety of psychopathic personalities, blind, deaf, lame, feebleminded persons, and patients with organic brain disease fall into this category.

2. The person who is in an acute abnormal state of mind at the time of the accident, such as the drunk, excited and depressed subject.

3. The patient who has to deal with some recent difficulties and is not able to handle them. Though not in an abnormal state of mind, the patient is obviously more preoccupied with his own problems than with other people.

4. Mixed states, in which a number of features are combined, and in which no single aspect can be made responsible for the accident.

The common factors in many of these cases can be seen in strong emotions such as guilt, fear, hate, anger or worry, which induce the subject to wilfully seek danger and accident in order to terminate an un-

bearable situation. After termination of the acute phase in the hospital, the situation often has not changed, and the subject is likely to develop a protracted post-traumatic syndrome. While alcoholism and fights are circumstances which predispose in injuries, they do not seem to contribute to late and protracted post-traumatic syndromes. The subject's awareness of his own responsibility in causation of the accident seems to prevent further protracted sequelae, whereas belief in his own innocence seems to favor protracted recovery.

Severity of the Injury

In the evaluation of late post-traumatic syndromes it is often important to ascertain the severity of the brain damage sustained. For this purpose, Ruesch *et al.*(35) made use of six signs known to be measures of brain damage. The severest criterion present determined the classification of each case. The criteria were:

1. The duration of the traumatic coma.
2. The duration of disorientation (if the patient has been examined psychiatrically) or the duration of the amnesia, which information can be obtained from the patient even if considerable time has elapsed since the injury.
3. Another criterion is the intellectual impairment following the trauma. Because of the rapid disappearance of these defects, positive findings of intellectual impairment indicate presence of brain damage, while negative findings may not necessarily exclude it(30).
4. Neurological signs and convulsions are good evidence of brain damage. However, as time passes, signs disappear, except for permanent and irreperable damage such as nerve deafness due to fracture of the petrous bone.
5. X-ray examination of the skull, even several years after the accident, often proves in adults a skull fracture where none was suspected.
6. Glucose and insulin tolerance tests constituted the sixth criterion, since Ruesch and Bowman(36) showed that abnormal tolerances were related to the presence of brain damage.

The results of the classification of our cases with regard to the severity of the injury are reproduced in Table 2.

It is obvious that chronic cases without signs had a greater frequency of mild or moderate injuries than either the acute patients or the chronic cases with neurological signs. This observation confirms the reports of Brend(8), Theato(40) and others, that cases with prolonged post-traumatic syndromes often suffered only minor injuries.

Persistent Signs of Damage to Brain or Skull

Out of the 125 patients with prolonged post-traumatic syndromes, 58 individuals or 46 percent, showed evidence of persistent brain damage, a figure which approximates that given by Anderson(4) (37 percent).

TABLE 2

Severity of the Injury

	No. of cases	Frequency in percent			
		Mild	Moderate	Severe	Complicated
Acute cases	70	21.7	26.1	44.9	7.3
Chronic cases with neurological signs	58	24.1	12.1	48.3	15.5
Chronic cases without neurological signs	67	47.7	18.5	23.1	10.7

Twenty-one individuals, or 17 percent, suffered from some kind of convulsive disorder. Thus, only one-half of the post-traumatic syndromes studied presented neurological problems, and of them, one-third were concerned with convulsive disorders. It is often difficult to decide whether trauma caused the convulsions or whether the convulsions would have developed even in the absence of any trauma. Thus, only 3 of our cases suffered from Jacksonian epilepsy in which the relationship between injury and convulsive disorder was obvious, while 9 showed grand mal type seizures, 4 petit mal, 3 grand and petit mal, and 2 psychomotor epilepsy. All of these patients, however, blamed the head injury as being the cause of their symptoms, and this attitude seemed often to be more of a problem than the convulsions themselves.

Three patients, in addition to their head injury, had fractures of the cervical spine. Five patients showed as the only neurological signs, inequality of the knee-jerks and pres-

ence of uni- or bi-lateral Babinski. X-rays of the skull revealed abnormal findings in 27 percent of the cases: bony defects in 6 cases (debridement, burr holes, non-operated depressed skull fractures), in 7 cases linear fractures of the base or vault, and in 2 cases defects due to perforating wounds. Hyperostosis frontalis interna was found in 2 cases, osteomas, enostosis or exostosis in 3 cases. This high incidence of positive x-ray findings contrasts with the low incidence of abnormal spinal fluid findings. All of the 20 lumbar punctures done in chronic cases yielded negative results, so that this procedure was discontinued as a routine measure. Ten of our patients showed more or less marked residuals of a hemiplegia, 7 had their paralysis on the right side, and only 3 on the left. This observation coincides with the x-ray findings, which indicate that left-sided skull fractures are more frequent than those on the right. In a consecutive series of 43 skull fractures demonstrated by x-ray in this clinic, 22 were on the left, 10 on the right, and 11 involved either the base or both sides of the skull. An explanation of this curious fact might be found in the prevalent right-handedness of people. The right side of the skull is protected by the outstretched extremity and in fights it is usually the left side of the skull which is hurt, if both opponents are right-handed. A small number of patients showed persistent cranial nerve paralysis. Three patients had signs of unilateral optic atrophy, 2 had residual paralysis of the oculomotor nerve, 4 had residual paralysis of the facial nerve, and 3 had uni- or bilateral nerve deafness. In 5 other cases, peripheral neuritis not related to the injury was found.

In summary one can say that, the neurological picture of late post-traumatic syndromes is dominated by the convulsive disorders, cranial nerve palsy, and hemiparesis. The frequency of the various sequelae is a function of the severity of the injury. While the frequency of post-traumatic convulsive disorders varies from 49.5 percent in open brain injuries to less than one percent if minor head injuries are included in the statistics, the majority of the studies indicate an incidence of 2 to 4 percent in civilian casualties (Denny-Brown)(13). The frequency of deafness is closely related to the incidence of fractures. According to Grove (19), 49 percent of fractures not involving the base cause damaged hearing, while the frequency increases if the fracture line involves labyrinth and petrous bone. Convulsive disorders and cranial nerve palsy due to fractures of the skull are the only two types of sequelae which do not improve in the course of time, while all other signs of intracranial damage due to contusion and laceration of the brain tend to improve as time passes. Presence of neurological signs and indication of severe brain damage, however, do not fully account for the development of late post-traumatic syndromes. While brain damage seems to impede the development of neurotic complaints, other personality problems arise in connection with invalidism and convulsive disorders, which often disturb the patient much more than the actual physical symptoms.

Physical and Laboratory Findings

In head injuries, disturbances of metabolic, endocrine and circulatory functions may occur if the vital centers are damaged. While in acute cases attention is usually directed at observation of temperature, pulse and respiration, relatively little is known about disturbances of circulatory and biochemical functions in the chronic stage. The following paragraphs are therefore concerned with the report of laboratory findings in cases with post-traumatic syndromes, which have been evaluated in the light of the results obtained in the three control groups. All the examinations were done on in-patients who had been hospitalized for a few days prior to the examination, thus assuring standard conditions for all the tests.

Blood Status.—Table 3 indicates that an absolute increase of white cells can be found in acute head injuries, in chronic head injuries with neurological signs, and in cases with brain disease. The white cell count thus differentiates between cases with evidence of brain damage and patients with primarily psychoneurotic features. A relative increase in lymphocytes occurred in chronic head injuries without neurological signs. While the occurrence of leukocytosis can be explained by the presence of degenerative and inflammatory foci in the brain, the occurrence of the relative lymphocytosis is difficult to understand.

Carbon Dioxide Capacity of Plasma.—Carbon dioxide capacity of plasma was determined by the method of Van Slyke and Cullen. All of the chronic head injuries had values which fell within the normal range.

Carbon dioxide content of venous blood was determined by the method of Van Slyke and Neill. All the values fell within the normal range.

Blood pH.—A Beckman pH meter and a glass electrode were used to determine the hydrogen ion concentration in the venous blood. All the values fell within the normal range.

Inorganic phosphorus was determined in acute and chronic cases by the method of Fiske and Subbarow. All the values fell within the normal range.

Non-protein nitrogen was determined in acute and chronic cases by the method of Koch and McMeekin. All the values for both acute and chronic cases fell within the normal range.

Urine Examination.—In routine urine examinations for specific gravity, reaction, albumen, sugar, and analysis of the sediment, the abnormal findings could always be related to some condition other than head injury. Acute as well as chronic cases were thus concluded to have no abnormal urine findings as far as the above named reactions were concerned.

Blood Glucose Values.—Determination of 94 fasting blood sugars in acute and chronic head injuries resulted in a mean of 103 mg. percent, ranging from 65 to 138 mg. percent. The distribution followed closely that given by Gray(18) for a series of normal control subjects. Fasting blood glucose levels in head injuries therefore have to be considered as normal.

Oral Glucose Tolerance Tests.—Ruesch and Bowman(36) reported previously the results obtained in 39 oral glucose tolerances which were determined following the technique of Fraser, Albright and Smith(16). The curves obtained indicated a slow and delayed return to fasting levels as measured by the area under the curve, confirming previous findings of Davidson and Allen(11). The upper blood sugar levels did not exceed 210 mg. percent which value falls within the normal range. The area of these abnormal curves correlated highly with the presence of confusion in the acute head injuries.

Intravenous Insulin Tolerance Tests.—Ruesch and Bowman(36) reported previously their experiences with 55 insulin tolerance tests which were determined following the technique of Freeman *et al.*(17). The results indicated a delayed return of the curve to fasting levels as measured by the area under the curve and a smaller than average fall in blood sugar values following the insulin injection. The area of these curves correlated significantly with the presence of signs of brain damage in acute as well as in chronic cases.

Intramuscular Adrenalin Tolerance Tests.—Following the insulin tolerance test, adrenalin was injected intramuscularly, following the technique of Fraser *et al.*(16) and Freeman *et al.*(17). The results indicated an insufficient rise in blood sugar for all the groups of head injuries studied.

Intravenous Galactose Tolerance Tests.—Previous results obtained with oral glucose and intravenous insulin tolerance tests suggested that one of the causes for disturbances of carbohydrate metabolism in head injuries might be found in impaired liver function. Following the technique of Basset, Althausen and Coltrin(5), intravenous galactose clearance tests were determined in 77 cases (Fig. 2). The results indicate that 9 out of 15 cases with acute head injuries showed delayed galactose clearance at 60 as well as at the 75 minute determination. The value for the other groups seem to approximate the normal range.

Oral Galactose Tolerance Test.—In order to investigate whether the previously reported abnormal oral glucose tolerance curves were an expression of abnormal carbohydrate metabolism or rather a function of the absorption rate in the intestinal canal, oral galactose tolerance tests were determined in 77 patients following the technique of Althausen(3). According to this author, values above 40 mg. percent at either 30 or 60 minutes after the ingestion of galactose have to be considered as definitely abnormal. Our findings (Fig. 1) indicate that the highest percentage of abnormal results were found in the acute cases, while the chronic cases without neurological signs revealed the most normal values of all the groups studied. In cases with brain disease, in acute head injuries, and chronic cases with neurological signs, the mean blood galactose level at 30 minutes was

TABLE 3

BLOOD STATUS

	No. of cases	PMN, %	F, %	NF, %	PME, %	PMB, %	L, %	M, %	WBC	RBC	Hgb *
Cases with brain disease.....	21	69.6	60.1	9.5	1.0	1.6	24.1	3.6	9,264	4,693,000	103
Acute head injuries.....	41	67.4	55.5	11.9	1.6	0.3	27.2	3.3	9.693	4,804,000	102
Chronic head injuries with neurological signs	20	66.1	57.8	8.3	1.1	0.2	29.6	3.0	9,384	4,780,000	98
Chronic head injuries without neurological signs	25	58.7	51.9	6.8	2.0	0.3	34.1	4.9	7,688	4,959,000	103
Psychoneuroses	26	63.2	56.9	6.3	2.1	0.3	29.7	4.8	8,191	4,717,000	102

* Hemoglobin was determined with the Acid-Hematin method, using a standard of 100 percent equal to 14.5 grams of hemoglobin.

lower than at the 60 minute level. The reverse was true for chronic cases without neurological signs and for psychoneuroses. These test results warrant the conclusion that brain damage is associated with slowed intestinal absorption, since the 60 minute determinations showed higher values than the 30 minute specimens.

Blood Cholesterol.—Blood cholesterol was determined by the method of Bloor, Pelkan, and Allen. The mean values found varied from 199 to 221 mgm. %, the chronic head injuries having slightly lower values than either acute cases or psychoneuroses. The acute cases have a greater variability of cholesterol values than any of the other groups as evidenced by the larger standard deviation. In contrast with the majority of the other laboratory findings, the cholesterol values do not seem to change with the presence or absence of signs of brain damage.

Basal Metabolism.—Metabolism under basal conditions and during work was studied by Ruesch(32) and reported elsewhere. The results indicate that among the head injuries the acute cases had the highest (minus 7.1), the chronic cases without neurological signs the lowest BMR (minus 12), while the chronic cases with signs fell in between (minus 9.4). These findings would indicate a trend toward lower BMR as objective signs of brain damage disappear.

Ventilation.—Ventilation volume in liters per minute, and tidal air in cc. per minute were determined for basal conditions and during work(32). Ventilation was lowest in cases with brain disease, and highest in the psychoneuroses. The three head injury groups fell in between, and the acute cases having values approximating the cases with brain disease and the chronic cases without signs being similar to the psychoneuroses. The results indicate that a parallel trend exists between ventilation, intelligence and neurotic trends as determined by the Minnesota multiphasic personality inventory. Ventilation volume increases with higher levels of intelligence and presence of neurotic traits. While cases with brain damage seem to have a relatively small ventilation volume or tidal air, the metabolic rate of these cases seems to be on the high side.

Regularity of Respiratory Excursions.—A short scoring procedure was used to rate the spirograms with regard to the regularity of respiratory excursions(32). The results indicate that among the head injuries the chronic cases without neurological signs had the greatest irregularity in their spiro-

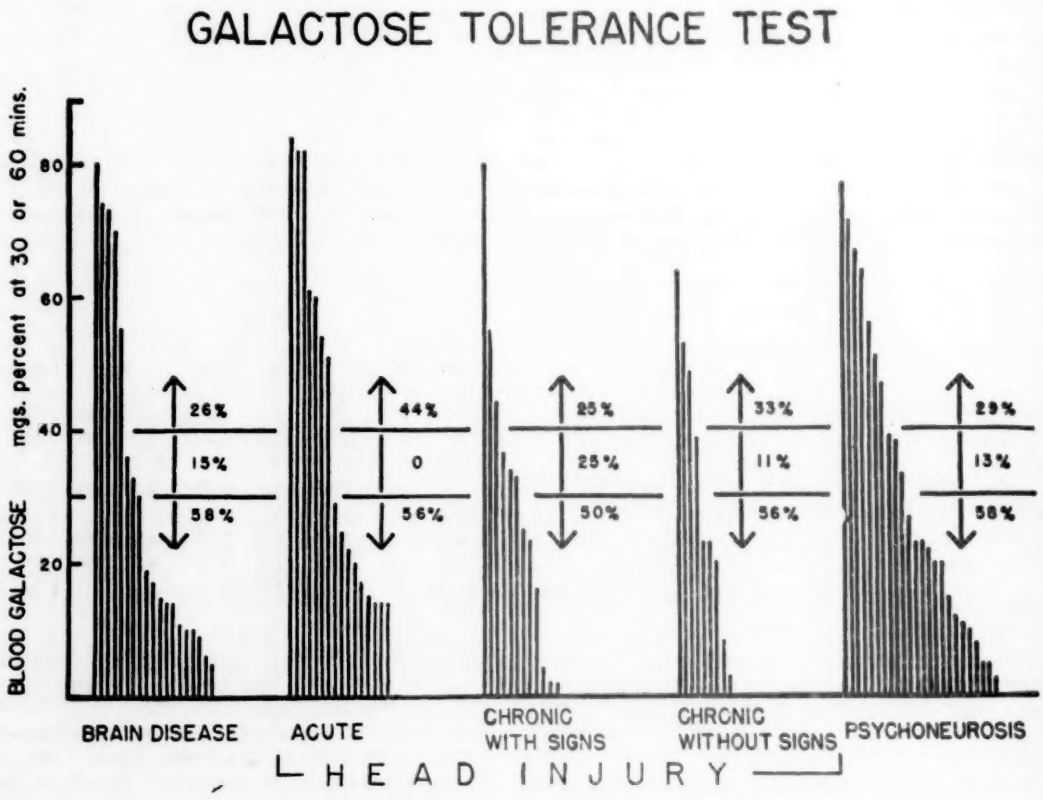

FIG. 1.—While each vertical line indicates the blood galactose level of one patient, the arrows indicate the percentage of cases in each group which fall above 40 mg. percent (abnormal), between 30 and 39 mg. percent (borderline), and below 30 mg. percent (normal range).

gram, while the acute cases were characterized by much more regular breathing patterns. Cases with brain disease as well as psychoneuroses scored irregular, indicating that personality disturbances of various origin may be associated with irregular breathing.

Electroencephalography Findings.—All tracings were obtained with from 10 to 16 electrodes which ran into a Grass electroencephalographic set of amplifiers. The recording unit was a 6 channel ink writing oscillograph. The evaluation of the records was based on the method reported by Aird and Bowditch(2).

The frequency of abnormal electroencephalographic findings runs parallel to the severity of the injury as has been pointed out before by Hoefer(22) and Williams(44). While acute head injuries have the largest amount of focal findings (Table 4), the chronic cases without signs have the smallest number of abnormal findings. But even in this latter group, the incidence of devious tracings is higher than one would expect in the normal population. This raises the question as to whether the abnormalities are an expression of altered cerebral metabolism due to injury, or whether they indicate a congenital anomaly. Since our personality studies indicate that head injuries afflict a special group of people, and in view of the borderline encephalograms of psychopathic and neurotic personalities (Lindsley)(24), it would seem likely that not all the abnormalities found in our cases are due to acquired brain damage only. While focal findings are probably more an expression of original brain damage, the generalized and diffuse findings may be related to an inborn anomaly of brain metabolism.

Muscular Tension.—Electromyographic tracings were used to determine the degree of relaxation of the forearm between discrete movements. The muscular activity consisted of lifting a weight(32)(33) at regular intervals while the subject was instructed to relax in between the movements. The results indicate that muscular tension is related to the presence of brain damage. The best degree of relaxation for all the patients was found in the psychoneuroses, the value of which, however, was still considerably below the figure obtained in normal control subjects. The acute cases resembled in their performance the cases with brain disease, while the chronic head injuries resembled the psychoneuroses.

Endurance.—The number of times a weight could be lifted under complete ischemia of the working forearm(32) was used to determine endurance to stress. In this experiment the psychoneuroses showed the least endurance to strain, while all the

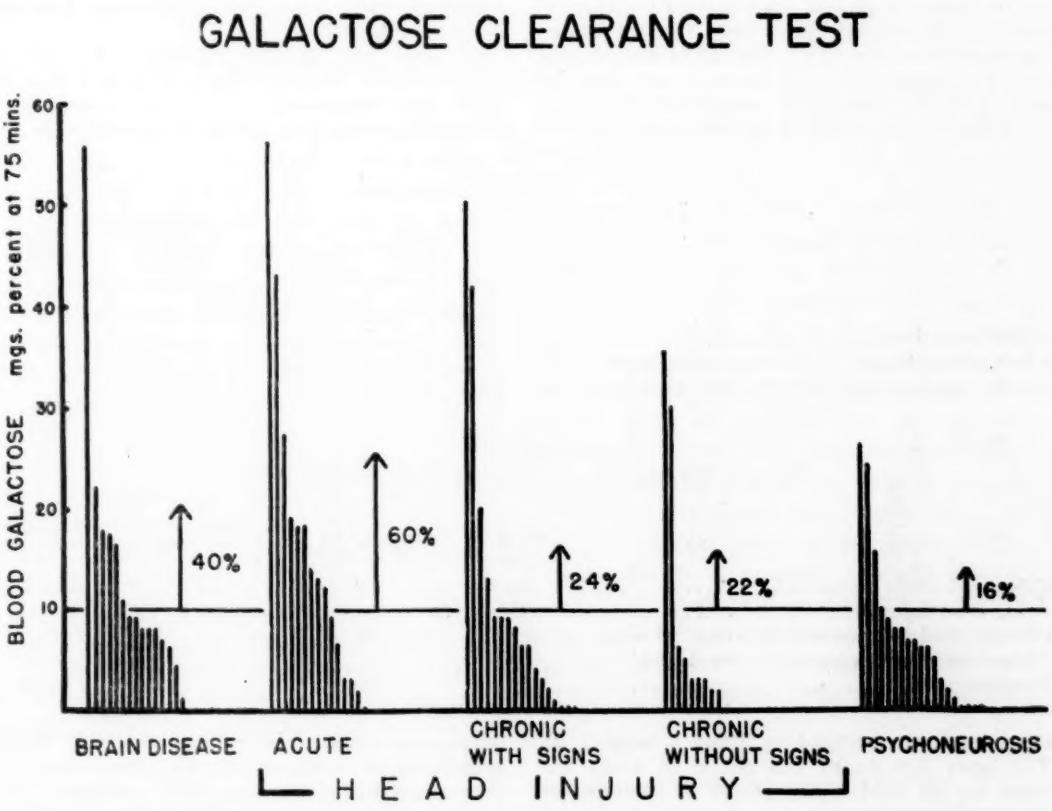

FIG. 2.—While each vertical line indicates the blood galactose level of one patient, the arrows indicate the percentage of cases above 10 mg. percent (abnormal).

other groups performed much better, but still worse than the normal controls. Brain damage apparently did not impair the resistance to this type of stress.

Pulse Rate.—In the chronic cases the resting pulse rate did not differ from the values found in the control groups. Differences, however, appeared if the pulse rate after exercise, painful stimulation, or injection of epinephrine was considered. Ruesch and Bowman(36) have shown that acute cases with confusion and chronic cases with neurological signs have a smaller increase in pulse rate following injection of epinephrine than either acute cases without confusion, or chronic cases without neurological signs. It follows that this deficient increase following epinephrine injection is related to the presence of brain damage. Similar findings were obtained when a blood pressure cuff was applied to the arm and inflated to a pressure of 200 mm. mercury, while the subject was engaged in lifting a weight(32). The heart rate during this period of strain was lower for all head injury groups as compared to cases with brain disease or psychoneuroses. In this connection it is of interest to note that, in post-traumatic psychoses the duration of instability of pulse rate exceeds that of temperature and respiration(25), and that in acute cases the heart rate shows a delayed return to the baseline after exercise (32). It would follow that injury to the head affects the autonomic or hormonal control of the heart rate, which prevents the compensatory increase in pulse rate as well as its quick return to the baseline.

Blood Pressure.—The mean blood pressure for head injuries under resting conditions is about the same in the acute (122/76) and in chronic cases (118/74). The mean values for the control groups were similar (130/76) for brain disease, and (121/76) for the psychoneuroses. The fall in blood pressure observed after insulin injection is proportionate to the initial blood pressure level, but it is not related to the presence of brain damage.

Body Weight.—The mean body weight for the three head injury groups is about the same, ranging from 144 to 149 lbs. (Table 5). The variation from the ideal weight calculated from age-height-weight tables indicates that all the cases are slightly underweight. Cases with brain damage and psychoneuroses differ most, while the chronic head injuries without signs approximate the norm. It is of incidental interest that the psychoneuroses have, with 134 lbs., a significantly lower body weight than the other patients.

Dark Adaptation.—Light thresholds after dark adaptation were determined by means of a Biophotometer(31). No significant differences from the norm were found.

Negative After Images.—Negative after images were produced by projecting a slide of a dark H on a light background onto a wall situated in a semi-dark room. The latency period between exposure and onset of image was prolonged in the acute cases as compared with the chronic cases. It thus seems that the factor which produces "concussion" might also be responsible for the delayed onset of the negative after images.

Tachistoscopic Examinations.—Short exposure of figures and letters by means of an ordinary classroom projector revealed that acute cases needed longer exposures than chronic cases, which did not differ essentially from the norm(31).

Reaction Time.—The time needed to depress a push button contact following perception of a light signal revealed that acute head injuries were the slowest group, normal controls the fastest, and that chronic head injuries fell in between(31).

TABLE 4

	No. of cases	Within normal limits	Generalized dysrhythmia	Generalized dysrhythmia with focal findings	Focal findings only
		Frequency in percent			
Acute head injuries	37	30	14	37	19
Chronic head injuries with neurological signs	46	26	44	26	4
Chronic head injuries without neurological signs	43	42	21	25	12

TABLE 5

HEIGHT, WEIGHT, AND DIFFERENCE FROM IDEAL WEIGHT

	No. of cases	Mean height in inches	Mean weight in lbs.	Mean difference from ideal weight
Cases with brain disease	20	66	143	−8
Acute head injuries	36	..	144	−8
Chronic head injuries with neurological signs	42	68	150	−4
Chronic head injuries without neurological signs	35	66	145	−1
Psychoneuroses	37	66	134	−13

Summarizing the laboratory results one might call attention to abnormal findings in head injuries mentioned in the literature: Davidson and Allen(11) reported about abnormal glucose tolerances; diabetes insipidus is mentioned by several authors to occur after

cerebral trauma(36); Schneedorf *et al.*(38) called attention to the decreased oxygen saturation of arterial blood following head injury; Cumings(10) maintains that plasma inorganic phosphate is raised in severe cerebral lesions and that if uremia develops, such patients show raised blood urea and phosphate levels with a normal volume of urine, but with a high excretion of urea in acid urine.

Our own investigations confirm the abnormalities of carbohydrate metabolism, but the disturbances of phosphate metabolism could not be verified. The results of the insulin, glucose, adrenalin, galactose tolerance tests and galactose clearance tests should be considered together. In post-traumatic psychoses, alcoholic subjects tend to have more severe and prolonged psychoses than non-alcoholic subjects(25), and since the abnormal glucose tolerance curves correlate with the presence of confusion, the question might be raised whether this is due to liver damage. The slow galactose clearance in acute cases would certainly support such a point of view. The rather frequent occurrence of positive liver function tests(15, 21, 29, 39) in diseases of the nervous system, in general, still lack an adequate explanation(43). Nevertheless, Wilson's disease and icterus gravis neonatorum with "Kern icterus" point to a relationship between liver and brain. Whether the slow regulation of the carbohydrate metabolism, whereby extremely low or high glucose values are rare, is also related to liver function is questionable. In view of the deficient rise in pulse rate and blood sugar after injection of epinephrine, one might rather speak of a deficient functioning of the adreno-sympathetic system, which is certainly present in the acute stage of head injuries, and may continue for many months well into the chronic stage. It is conceivable that brain damage might change the nervous or hormonal control of extra cerebral organs such as thyroid (metabolism, galactose tolerance test) or liver (galactose clearance test), which in turn might be responsible for some of the post-traumatic disturbances. Whether the increase of the white blood count and the changes in ventilation are due to the same source is difficult to decide.

In conclusion, it can be said that while the personality tests failed to distinguish between chronic head injuries with and without neurological signs, a number of the physiological tests showed clear cut differences. Chronic cases with neurological signs resembled in many instances the patients with brain disease, while chronic head injuries without signs were in many respects close to the psychoneuroses.

Psychological Test Results

The problems of intellectual impairment in head injuries have been discussed by Ruesch(30), and Ruesch and Moore(34). These authors showed that in an unselected sample of head injuries, about one-half of all the acute cases suffered from temporary intellectual impairment, which was determined by repeated examinations during the period of recovery. Three months following the injury, only 2 percent of the cases showed intellectual impairment of a more permanent nature. It is safe to assume that one year after the injury the percentage of cases showing marked and permanent dementia would be considerably below this figure. The psychological recuperation of the brain following trauma is remarkable (Denny-Brown) (12), but whether this faculty is an expression of the reversibility of pathological lesions, or due to relearning, possibly with the use of undamaged brain parts, is difficult to decide. Focal irritative lesions can produce intellectual impairment which in turn may disappear again upon removal of the focus. In our series a 35 year old woman with a depressed fracture in the left frontal bone developed subsequently generalized convulsions. The pre-operative I.Q. was 105; after a left frontal lobectomy, the I.Q. increased in the course of six months to 116. In such a case one has to stipulate that an irritative focus impedes the proper psychological functioning of the whole organism, a theory which coincides with observations made by Hebb and Penfield(20) and Penfield and Erickson(26).

In late post-traumatic syndromes it is often impossible to determine whether intellectual impairment is present or not. Analysis of the intelligence quotients in our cases

suggests that chronic cases with neurological signs have a considerably lower intelligence quotient than the cases without signs. It is difficult to decide whether this difference is an expression of deterioration in the cases with brain damage or based on natural selection of intelligent persons in the cases without neurological signs. Though both factors probably play a rôle, our findings seem to support the observation of other investigators (Eysenck) (14) that neurotic individuals are of above-average intelligence.

In order to obtain an index of a person's ability to keep up a sustained effort, the patients were subjected to the task of consecutive additions (42). Pairs of single digit numbers, printed in vertical columns, had to be added as fast as possible. A pause of ten minutes interrupted the test after thirty minutes, whereupon the task was continued for another half hour. Psychopathic and neurotic personalities showed a much greater variability in their performance than other cases as shown by substantial correlations with the Minnesota multiphasic personality inventory. The total number of additions done correlated with the I.Q. only in cases with brain disease, indicating that this performance is related more to deterioration than to basic intelligence.

Table 6 reproduces the main findings concerning I.Q. and the Minnesota multiphasic personality inventory. The figures labeled 'neurotic' score represent the sums of the 'hypochondriasis,' 'hysteria' and 'depression' scales of this test, while the 'psychotic' score has been obtained by adding the 'psychasthenia,' 'paranoia, and 'schizophrenia' scales. This procedure was selected because of our experience that most neurotic patients score high in one or more of the first three scales, and organic patients on any of the last three scales. The most normal group were the acute head injuries, who score slightly above average only in the 'depression' scale (Ruesch *et al.*) (35). The chronic head injuries have a high 'neurotic' score and, to a much lesser degree, an abnormal 'psychotic' score. The psychoneuroses score highest in the 'neurotic' score. Cases with brain disease also score above average, but they differ from all other groups by having about an equally abnormal score for 'neurotic' and 'psychotic' trends, which indicates the diffuseness of the personality disorder in these patients. Table 6 thus indicates that chronic head injuries resemble the psychoneuroses much more than the cases with brain disease. This becomes especially clear by computing the difference between 'neurotic' and 'psychotic' score: values around zero indicate diffuse personality involvement, high positive figures indicate neurosis, zero or negative values, psychosis.

TABLE 6

PSYCHOLOGICAL TEST RESULTS

	No. of cases	I.Q.	Minnesota multiphasic inventory: Neurotic score *	Psychopathic score	Psychotic score	Difference between neurotic and psychotic score
Cases with brain disease	20	95.8	191	63	184	7
Acute head injuries	51	96.0	171	59	153	17
Chronic head injuries without neurological signs	60	108.1	198	56	170	28
Chronic head injuries with neurological signs	57	101.1	205	58	171	34
Psychoneuroses	37	109.0	217	62	182	35

* The norm for neurotic and psychotic score is 150 with an S.D. of 30. The norm for the psychopathic scale is 50 with an S.D. of 10.

In summary, one can say that the only reliable procedure for determination of intellectual impairment consists of repeatedly measuring the gradual improvement after injury, or the decline of performance in cases with progressive brain disease. Conclusions born out of a single examination and based on comparison of performance scores with vocabulary or estimated previous intelligence level have to be considered with reservations.

While the importance of intellectual impairment in late post-traumatic syndromes can be minimized, measurement of personality disturbance claims more attention. In our experience the results obtained with the Minnesota multiphasic personality inventory largely agreed with clinical impressions, and while the method does not reveal the causes of a deviating personality structure, the test constitutes an efficient screening device which allows an objective comparison of an individual's performance with well established psychopathological syndromes.

Presenting Symptoms and Complaints

In order to analyze the number and type of complaints, Ruesch *et al.*(35) typed a series of 48 complaints on single cards, asking the subject to sort these according to "true" or "false." The results indicated that in more than 60 percent of the cases, headaches, nervousness, and fatigue were the most frequent complaints. Fifty to 60 percent of the subjects complained of poor health, poor eyesight, excitability and lack of concentration. From 40 to 50 percent mentioned stomach upsets, feelings of pins and needles along the extremities, and difficulty in thinking.

Analysis of the number of complaints in the three groups of head injuries indicated that chronic cases had more complaints than recently injured cases. This fact held for every single complaint except for poor appetite which was more frequent in the acute cases. In the acute cases the complaints were related to physical signs; hence, those with evidence of brain damage had more complaints than those without. This relationship was entirely reversed in the chronic cases and patients with severe injuries had few complaints, while those with mild injuries had many complaints. It is of interest that headaches were more frequent in cases without neurological signs, which finding coincides with Anderson's(4) observation that in his series all cases with absence of headaches showed organic sequelae of head trauma. The study of complaints thus indicates that immediately after the injury, complaints are related to the physical damage, and are proportionate to the severity of the injury. The majority of the subjects become thereafter symptom free in a few weeks or months. But there are a number of individuals who keep on having symptoms. Their complaints are multiple and diffuse, and their number increases the longer the post-traumatic syndrome lasts. The reversed course can be observed during the recovery of post-operative cases with brain tumor, subdural hematomas or lobectomies. While the patients complain initially of some dizziness or headache, the majority of the cases become more symptom free as time passes.

TABLE 7

Number of Complaints in Head Injuries and Controls

	Complaint Scale I		Complaint Scale II	
	No. of cases	Mean	No. of cases	Mean
Cases with brain disease	7	11.6	18	21.3
Acute head injuries	38	7.0	11	9.0
Chronic head injuries with neurological signs	38	14.8	15	19.0
Chronic head injuries without neurological signs	41	12.9	16	21.5
Psychoneuroses	13	14.1	25	21.9
All cases	137	11.9	85	19.6
S.D.		9.4		10.6

Comparison of complaints of head injuries with those of the control groups reveals that, while all groups have about the same number of complaints, acute cases excepted (Table 7), no substantial differences in the type of complaints exist between the various groups. Even headache, for instance, was not a specific complaint of head injury cases alone.

Only 3 out of 125 cases studied were related to compensation problems: the clinical pictures consisted in the first case of inability to move an arm, in the second, of repeated episodes of amnesia during which the patient took trips to Florida or Southern California, and the last patient had a syn-

drome with headaches. In all three patients psychogenic features were closely interwoven with conscious malingering.

This low incidence of compensation neurosis contrasts with reports of the older literature and recent publications from England (Anderson)(4). The absence of compensation problems in our series is obviously related to the fact that at the time of the study (1943/44) civilian workers could earn such large incomes that almost everybody wanted to take advantage of the situation. Another reason can be seen in the low incidence of insured and industrial accidents in the patients studied.

In summarizing the symptomatology in late post-traumatic cases, one is struck by their unspecific character. Headaches occur frequently even in psychoneuroses without history of trauma, and patients with brain damage often do not complain about headache. While in the acute phase, the symptoms are related to the physical damage and are localized, the number of complaints increases and the nature of the symptoms becomes diffuse as time elapses since the date of the accident.

The Psychiatric Problem

Comparison of the chronic cases with various control groups showed striking differences and similarities. The chronic head cases differ from the acute head injuries and are similar to the non-organic psychoneuroses (see Fig. 3). These findings are in agreement with those of Lewis(23) who reports that he could find no substantial differences in a comparative study of chronic head cases with non-organic psychoneuroses.

Our chronic post-traumatic syndromes belonged to the middle class with a stable economic and social environment. Most of the patients were married; a few owned their homes. Many were in skilled or professional work; they had more education, and their incomes were higher. But under this surface of social adjustment loomed a great many more neurotic tendencies than in the acute cases. Neurotic traits in childhood and adult life were more frequent than in the acute cases. Impotency, frigidity, marital incompatibility without leading to divorce were frequent. Many of these subjects were discontented, frustrated and dissatisfied. Failure to achieve their levels of aspiration did not lead to resignation as with the acute cases, but over-concern with body functions was the usual result. In many instances, the causes which led to the accident were also responsible for the delayed or definitely postponed recovery. As far as symptomatology was concerned, anxiety syndromes with hyperventilation, palpitation, choking, feelings of pins and needles, and fear of impending threat were not frequent. In no instance could we prove that post-traumatic nightmares and anxiety states which existed six months or later after the injury were of purely traumatic origin. The history always revealed pre-traumatic signs of anxiety. Within these groups, those with persistent signs of brain damage differed from those without such signs.

Chronic Cases with Neurological Signs.—The physical symptomatology largely decided the type of psychiatric problem found in this group. Patients with the convulsive disorders showed the usual problems found in these conditions: fear of personal mutilation during a seizure, concern with their future with the implication that the family might lose its supporting member, embarrassment at being seen by members of the family, especially children or other people, during the fit, inability to take well-paid construction or shipyard jobs because of rejection on account of exaggerated insurance risks. The latter problem is especially trying since it forces the subject to migrate to new places of employment until the next fit bars them from work again. All these psychological problems have an unfavorable prognostic influence, a fact which has been pointed out by Price and Putnam(28) for cases suffering from idiopathic epilepsy.

People with sensory impairment (vision, hearing, taste, smell) often showed mild paranoid trends, and were inclined to become retiring and to isolate themselves. The least concerned were the subjects with mild hemiparesis or paralysis of one limb. Subjects with visible scars (loss of external ear, depression in frontal region) were concerned with their appearance and dreaded rejection of prospective employers. Advice re-

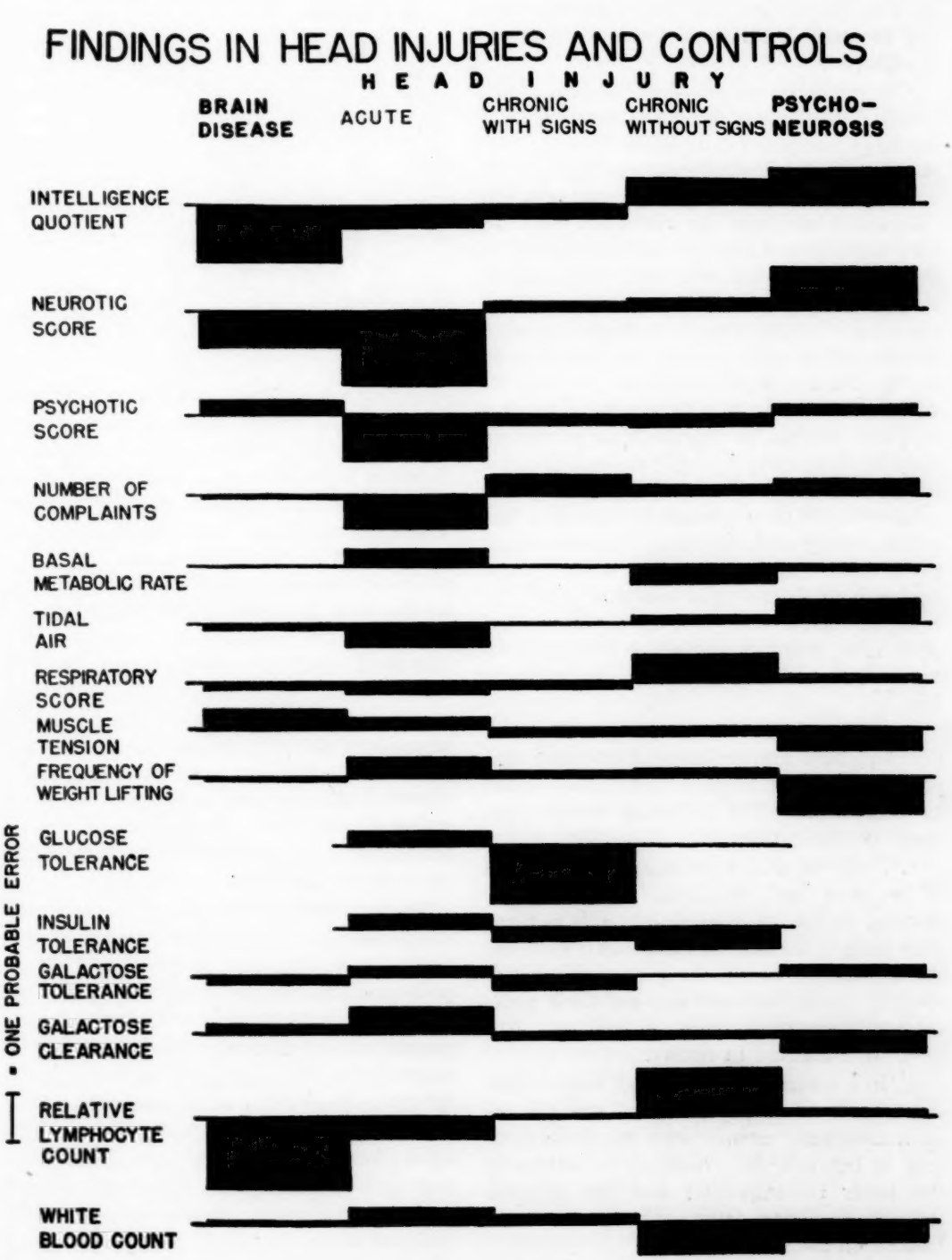

FIG. 3.—The blocks indicate the deviations from the mean (of all cases) plotted in terms of probable errors of the distribution. The diagram does not indicate the relationship to otherwise established norms, but merely shows the relationship of the findings within the five groups studied.

garding the physical disability often improved the mental condition of these patients remarkably.

Chronic Cases without Neurological Signs.—The diffuseness of the symptomatology and the large number of complaints were the outstanding signs. Psychiatrically speaking, only a few of the cases in this group could be called "traumatic neuroses" in which the head injury actually had changed the personality of the patient. The majority had difficulties in interpersonal relationships which antedated the injury. Many were in a chronic state of dissatisfaction and showed no pleasure in living. Disease, injuries and lack of financial success seemed to pile up on them and invalidism seemed to represent an enjoyable state in which the lack of responsibility relieved these people of a heavy burden. Others achieved with their condition what they had not succeeded in doing before: attention was given them, and dependence on wife, mother, husband or doctor was established. Thus their condition was used as a pretext for prolonging a situation in which they received more love and affection than in ordinary life.

In the majority of cases, dynamic relationships between psychological problems and prolonged post-traumatic syndromes could be established. The following three types could be distinguished:

1. Subjects with a perpetual fear of lack of support and economic disaster. The trauma, of course, played into this personality feature, and the accident was considered the realization of the long expected catastrophe. These patients enjoyed their post-traumatic syndrome because their fear had been substantiated in reality.

2. In a second type, the head injury coincided with other psychological experiences of a traumatic nature such as divorce or loss of beloved, etc. Inability to adjust to the latter circumstances and the physical feelings resulting from unhappiness were blamed on the head injury.

3. A smaller number of patients sought an accident as the solution to an unbearable situation (anxiety state, panic, guilt feelings). Since the same circumstances often continue to prevail after the injury, the post-traumatic syndrome and its invalidism are an escape mechanism for this preexisting situation.

Therapy and Rehabilitation

The longer a post-traumatic syndrome lasts, the more likely it is to fall into the field of the psychiatrist, post-convulsive disorders excepted. One year following the injury, neurological sequelae such as brain abscess, subdural hematoma, or traumatic cysts become rare. Nevertheless, every examination of a post-traumatic case should start with the assessment of the neurological disability and estimation of the severity of the injury. Following the physical diagnosis, the psychiatric interview should be directed at investigation of the circumstances surrounding the accident and the state of mind preceding the injury. Knowledge of the psychological setting before the injury furnishes in many instances an understanding of the present condition, because the circumstances which led to the accident might also be responsible for the delayed recovery. The patients often distract the doctor's attention by focusing his interest on complaints and post-traumatic events. Directing the discussion to the patient's pre-traumatic problems will even the way for further psychotherapeutic sessions, and in the patient's mind the injury will then gradually diminish in importance. A shift in complaints can then be observed and the head will cease to be the center of attention. From then on the patient should be treated like any other psychoneurotic case.

We have mentioned before that overt maladjustment and alcoholism predispose to a prolongation of the acute phase and also to post-traumatic psychoses. These same cases, however, are unlikely to develop late and protracted post-traumatic syndromes. On the contrary, cases with a brief phase of hospitalization have often been observed to grow worse if an adjustment has to be made at home after discharge from the hospital. From a prognostic standpoint, therefore, uneventful immediate recovery in a maladjusted individual seems to imply the possibility of later complications, while the reverse will hold for well adjusted cases even in the event of a severe injury. Patients with anxiety attacks, anxiety tension, nightmares, hyperventilation syndrome, or other hysteric manifestations should be referred to the psychotherapist while still at the hospital. It is

the impression of the authors that it might be easier to prevent the development of post-traumatic syndromes, than to cure them once they are developed. Psychotherapy of post-traumatic syndromes is as time-consuming and successful as in other psychoneuroses. However, it is often possible to make the patient realize in a few interviews that his personality problems and not the injury are the cause of his unhappiness. The therapist focuses the interest of the patient on his problems rather than on his symptoms. While this recanalization of libidinous energy of course does not cure the patient, it rehabilitates him on the level which prevailed before the injury.

Summary and Conclusion

1. A series of 125 late post-traumatic syndromes have been compared to 70 cases with acute head injuries, 30 cases with brain disease, and 40 psychoneuroses. The methods of investigation comprised: complete neurological, psychiatric, electroencephalographic and radiological study; investigation of respiratory and circulatory functions under basal conditions and during work; determination of muscular tension and endurance under stress; complete laboratory work-up including blood status, determination of non-protein nitrogen, blood cholesterol and urine examination. Oral glucose, intravenous insulin, intramuscular epinephrine, oral galactose tolerance tests, and intravenous galactose clearance tests were carried out on varying numbers of patients. Intelligence test, the Minnesota multiphasic personality inventory and a complaint scale, dark adaptation, negative after images, tachistoscopic examination and reaction time studies were also carried out.

2. The common features of late post-traumatic syndromes were the abnormal high score on the neurotic scales of the Minnesota multiphasic personality inventory and the large number of diffuse complaints. Related to the presence of brain damage in chronic head cases were increase in metabolism and muscular tension, decrease of intelligence, delayed return of sugar values to the base line in insulin and glucose tolerance tests, increase in white blood count, insufficient increase of the pulse rate during stress and after injection of epinephrine. Related to the presence of neurotic tendencies were higher intelligence, greater ventilation volume, irregularity of breathing and decrease of endurance to stress.

3. Comparison of late post-traumatic syndromes with acute head injuries and cases with brain disease on the one hand, and psychoneuroses on the other, revealed that chronic head cases without signs of brain damage resemble the psychoneuroses and often cannot be distinguished from these. Chronic head cases with neurological signs are in many respects closer to the acute cases and resemble the psychoneuroses less.

4. In late post-traumatic conditions, the importance of organic damage to the brain has been widely overrated. While cases with severe brain lesions improve as time goes on, post-traumatic conditions without signs of cerebral damage tend to become worse. The longer a post-traumatic syndrome lasts, the less likely it is to be an expression of brain damage, and after one year following the accident most post-traumatic conditions constitute personality problems, convulsive disorders excepted.

5. The post-traumatic personality is a determining factor for delayed or definitely postponed recovery following head injury. While overt and social maladjustment is related to accident-proneness, covert maladjustment, conflicts and dissatisfaction seem to be associated with prolonged convalescence and post-traumatic physical symptom formation.

6. Abnormal states of mind associated with intoxication, excitement, hatred, fear, guilt or other emotions predispose to accidents. While in some cases the injury may act as a release and solution for an unbearable situation, the environmental conditions and the subject's state of mind after the injury are in many instances the same as before the accident. The same circumstances which may lead to accidents seem therefore to predispose to delayed recovery.

7. While the therapy of convulsive disorders, subdural hematomas, brain abscess, paralysis of cranial nerves and extremities follows traditional lines, the psychiatric treatment of late post-traumatic conditions has

to start with the prevention of these syndromes in the acute stage. Attention should be directed at investigation of the state of mind prior to the accident. Pre-traumatic difficulties of adjustment, or immediate post-traumatic signs of anxiety, hysteria, or hypochondriasis should be approached with psychotherapeutic measures. The patient's realization of the presence of pre-traumatic personality difficulties and awareness of the responsibility in the causation of the accident seems to favor recovery. Less successful, but quite amenable to psychotherapy are cases with post-traumatic syndrome of longer standing seen weeks or months following the injury.

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A CONJECTURED CORRELATION BETWEEN DEPRESSIONS OF THE MANIC-DEPRESSIVE AND INVOLUTIONAL MELANCHOLIC TYPES AND ETHNIC ELEMENTS IN THE PRESENT-DAY POPULATION OF BRITAIN

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Affective psychoses form a larger part of the admissions to mental hospitals in Britain than is commonly realised. Considerable variations occur over this area, and generally speaking, the incidence of melancholia appears to increase towards the north, until in Inverness in North Scotland an admission rate of over 50 percent of melancholias has been recorded(1). Involutional melancholia likewise shows a patchy frequency, being of maximum occurrence in the north(2), but has also been noted as common in such diverse areas as Northumberland and Somerset(3).

As the racial composition varies considerably over different parts of the country, consideration has been devoted to the possible influence of an ethnic factor in this geographical distribution of affective psychoses.

The racial composition of Britain is less varied than that of the United States. The great bulk of the population is made up of only three of the five main European ethnic types. It has been estimated that of these Nordic contributes 60 percent, Mediterranean 30 percent, and Alpine 10 percent(4). Here and there members of other ancient stocks, such as the Atlantic or Dalic, Near Eastern and Dinaric, can be detected, but with the exception of Atlantic are of rare and sporadic occurrence. The Atlantic type is sometimes considered a heavier variant of the Nordic, by others, however, is thought to derive from the Cro-Magnon race of the Magdalenian epoch. It resembles the Nordic but differs in its taller stature, heavier build and shorter face. The type is commonest in Scotland. In addition, people with the physical characteristics associated with Semites are sometimes thrown up in the coastal districts of the west, and are regarded as the descendants of the Prospectors, or, in popular parlance, the Phoenicians, a trading people deriving from the Eastern Mediterranean. Very occasionally an individual occurs whose skull is flattened at the back and whose features betray the hall-mark of the Dinaric type, as exemplified by the modern inhabitants of the Dinaric Alps in the Balkans. These people are thought to be a throw-back to the Beaker-Maker folk of the Early Bronze Age.

The main types are well known and need little amplification. Thus Nordic is best exemplified by Southern Swede, Mediterranean by Southern Italian, and Alpine by South German or Swiss; both Nordic and Mediterranean are long-headed whilst Alpine is broad-headed. The relative proportions of these three types differ considerably over Britain. The Nordic occurs in greatest purity in Scotland, Northumberland and Eastern England; the Mediterranean is increasingly prevalent in the southern part of the country, being of most frequent occurrence in South Wales; and the Alpine element, detectable over most of the country, is met with increasingly in North Wales and the English Midlands(5).

As is well known, anthropologists have sought to establish a connection between Nordic race and asthenic type and between Alpine and pyknic(6), or even between the entire Mongoloid stem and pyknic(7). It seems possible that such an interpretation may not be without practical application. Although, for instance, the slender Nordic may develop a corpulance in later life, and to that extent become "pyknic," he would still be easily distinguishable from the pyknic Alpine(8). It is therefore, likely that Hesketh and Wertheimer may have been too sweeping in their statement that the influence of race on bodily habitus is negligible(9).

In the racial section of their monograph they state:

> That racial distribution is not a causal factor for these morphological types as has been claimed by Stern-Piper is apparent from our material which is an example of the racially heterogenous American population. Our patients represent parental extraction of the following character: Scotch, Irish, English, Dutch, French, Norwegian, North German, South German, Welsh, Swedish, Canadian, Portuguese, Russian, Italian, Polish and Czecho-Slovakian(10).

But this is a catalogue of peoples and not of races. These peoples are made up of different proportions and blends of the five main European races, Nordic, Mediterranean, Alpine, Dinaric and East Baltic. Later on, these investigators compare the descriptions and illustrations of Don Quixote and Mr. Pickwick, advancing then as prototypes of asthenic and pyknic respectively(11). The Spanish nobility of Cervantes' time, however, was mainly a Nordic ruling class, and illustrations of Don Quixote would not appear to make him an exception, whilst Houghton's illustration of Mr. Pickwick could equally well represent the typical Alpine racial stock.

In the compilation of the present paper attention has been directed to the possibility of Nordic and Alpine ethnic factors favouring the predominance of particular psychoses. While working in Northumberland County Mental Hospital, draining a population of relatively pure Nordic type on the English side of the Scottish Border, one was struck by the prevalence of involutional melancholia, and enquiries revealed the high incidence of Scottish, and to a lesser extent Irish, ancestry in involutional melancholics compared with control groups of manic-depressives and schizophrenics. Further investigation has been carried out during the past eighteen months on a population of rather different racial blend. Derby County Mental Hospital has a population almost entirely of English origin—unlike Northumberland where 25 percent of patients betrayed evidence of extraneous ancestry—and the prevailing ethnic type is a Nordic-Alpine blend. Scottish or Irish antecedents, although occasionally present, are uncommon and no more extensive in involutional melancholics than in any other group. The County of Derby, situated as it is in the heart of England, with its hillier areas relatively inaccessible until recent times (12), and with a long-settled population has, in the past, probably offered little incentive to strangers, and it is therefore hardly surprising that extraneous ancestry should be less common than elsewhere.

During the year ending May 1944 there were 270 female admissions, 80 of these being affective psychoses of the manic-depressive and involutional melancholic varieties; manic-depressives greatly outweighed involutional melancholics, accounting for 69 cases. At the involutional period itself there were 30 depressive psychoses, but amongst these were 19 of the typical manic-depressive type. Patients whose illness was mainly schizoid were not included here but were subsumed under the paraphrenic group. Thus involutional melancholia occurred in 13.5 percent of affective psychoses, representing only 4 percent of admissions. This low incidence of involutional melancholia coupled with the prevalence of manic-depressive illness is noteworthy in view of an assertion recently made that involutional melancholia might more properly be diagnosed either manic-depressive psychosis or schizophrenia occurring late in life(13). In Northumberland, over a corresponding though preceding period, the ratio was rather different, as involutional melancholia was recorded in 42.4 percent of affective psychoses, representing 14 percent of admissions.

Such a disparity can hardly be due to coincidence, and one is impelled to seek some other explanation. In both counties the environment is rural, a fact generally regarded as favouring the occurrence of this particular psychosis, and in both cases agriculture and coal-mining are leading occupations, whilst climatically there is no marked difference. Under these circumstances the action of a genetic factor can scarcely be excluded. In a previous paper(14) a possible connection was indicated between involutional melancholia and the Celtic sub-type of Nordic, based on the special frequency of the disease in areas of predominantly Nordic ethnic type where a Celtic strain was known to be present or where strong evidence existed for the assumption of its presence. The frequency of the disease in such areas was

contrasted with its rarity in localities where the prevalent ethnic type, although Nordic, belonged to the Teutonic sub-type. The European incidence of the malady is not limited to Britain, since it occurs also on the continental mainland. Even there the Celts once held sway over large stretches of the west, and it is improbable that this heredity has been entirely obliterated from the genotype of the existent population. The race apparently remained purest in South-West Germany, and the German anthropologist Günther was led to admit that many a Nordic German might just as easily be of Celtic as of Teutonic origin(15).

In a mixed community there exists the further possibility that the blend of racial types may modify a psychosis. Modifications have been reported in cases of manic-depressive psychosis and have been attributed to admixture with Indian and Negro blood (16). The genetic basis of this is obvious when it is considered that genes act in a gene-complex, constituting an enviroment in which each gene plays its part, and that the effects of a particular gene are altered when, as the result of racial crossing, it is placed in a complex different from that to which it was originally accustomed. Moreover, both the intensity of a psychosis and its onset in a given stock could be explained by the known action of genes. The expressivity, for example of the gene producing dominant polydactyly is responsible for the intensity of the lesion, which varies from a single knob on one hand in addition to the normal fingers to well-developed extra digits on both hands and feet(17). Yet again, the penetrance of the gene producing inflammation of the accessory nasal sinuses is incomplete, since its action depends on exposure to infection(18). The phenomenon of penetrance, or frequency with which certain genes produce any effect at all, could reasonably be invoked to illuminate the action of predisposing environmental factors in contributing to the development of a psychosis.

Normally a genetic factor associated with a particular stock would naturally be of maximum occurrence where the type occurred in greatest purity, but nevertheless as the result of racial mixture would be capable of appearing sporadically in individuals whose phenotype differed considerably from the original bearers of the gene. The operation of this latter factor appeared to be implied in the physical make-up of involutional melancholics amongst the Derbyshire case-material. The groups were studied anthropologically, consisting of 10 involutional melancholias, 35 manic-depressives, and 50 other hospital inmates chosen as controls. Little difference was noticeable, the prevalent Nordic-Alpine blend occurring with equal impartiality in all groups. Dealing with only one broad-headed stock, the Alpine, it was permissible to employ the cephalic index as an additional criterion of its presence. The index varied negligibly, being 79.5 in the involutional melancholics, 79.3 in the manic-depressives, and 79 in the control group, and hence could with some justification be taken as mirroring the trend towards brachycephaly in the general population. An index of 75 and under is characteristic of both Nordic and Mediterranean types, whilst 80 and over is characteristic of Alpine. An index of 79 indicates mesocephaly of a degree nearly equivalent to brachycephaly, and in Britain signifies the extent of Alpine participation in the racial blend.

If the contention be accepted that Alpine racial type is related to pyknic bodily type with its known affinity for manic-depressive psychosis, the relative frequency of this psychosis in the mixed population under discussion might well be genetically conditioned and depend on the greater prevalence of this racial element. Such an etiology would help to explain a regional distribution of this psychosis. In like manner the comparative scarcity of involutional melancholia might be due to the relative absence of a Celtic strain in the local stock.

SUMMARY

Observations have been made on some aspects of the geographical distribution of manic-depressive and involutional melancholic psychoses, and suggestions have been offered as to the possible presence of genetic factors in the etiology of these psychoses.

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WHAT HAPPENS TO PATIENTS WHO ARE HOSPITALIZED FOR THE FIRST TIME WHEN OVER SIXTY-FIVE YEARS OF AGE

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Public mental hospitals will be called upon, in the future, to care for an increasing number of older patients. While the number of older people in the general population increases from year to year, the number of older patients admitted to mental hospitals is rising at a very much greater rate.

Proper planning of hospitalization for such patients requires information as to the expectancy of hospital life of these patients, the probable sex distribution, and evidence as to whether there are marked differences within the group associated with sex, age or diagnosis.

In order to answer these questions, we made a survey of the first admissions of patients over 65 years old to the Maryland state mental hospitals. We set the limit of 65 or over because this is the limit usually adopted in United States for granting old-age pensions. The material here presented comprises 683 cases, all the first admissions over 65 received during a three year period; 239 were admitted in 1938, 218 in 1939 and 226 in 1940.

There were no significant differences between the groups admitted in 1938, 1939 and 1940; the total number of patients in each group is almost the same. Sex distribution is almost the same: 1938, male 56% female 44%; 1939, male 58%, female 42%; 1940, male 54%, female 46%. The proportion of colored and white patients varied little from year to year: 1938, white 82%, colored 18%; 1939, white 83%, colored 17%; 1940, white 82%, colored 18%. The age distribution in five-year increments was also approximately the same for the three annual samples.

There were, among our 683 patients, 12% more men than women (Table 1). This sex difference became much more marked when the group was divided in respect to color. White male patients represented 53% and the white female 47% of the total white group, while among the colored there were more than twice as many males as females. The predominance of male colored over the female colored was observed year by year; 1938, 74% against 26%; 1939, 60% against 40%; 1940, 66% against 33%.

In regard to marital status, there is a marked sex difference between the patients who were married or divorced at the time of admission. Male married, 73%, female married, 27%; male divorced, 80%, female divorced 20%.

Of the 683 patients admitted, 85% were classified in two main diagnostic groups, psychoses with cerebral arteriosclerosis and senile psychoses.

Duration of Hospital Residence

All first admissions of patients over 65 during 1938, 1939 and 1490 were followed for three years from the date of admission. Each group of annual admissions was studied separately and compared with the other groups. No significant differences were discovered and the three groups were therefore combined. The final study of the length of hospital residence is based on the hospital history of the total, 683 patients (Table 2). Because it was possible to follow the group admitted in 1938 for five years, this group was studied separately in order to discover whether two more years of life history would make any significant difference in our conclusion.

Of the total group of 683 patients 114 died and 10 were discharged as improved or unimproved during the first month of hospital residence. During the second month, 50 more patients died and 10 more were discharged.

In the third month there were 26 deaths and 5 discharges so that at the end of three months 190 patients were dead and 25 had been discharged from the hospital. During the next three months there were 62 deaths and 21 more discharges so that at the end of six months 252 or 37% of the patients were dead and 46 or 7% has been discharged. During the next six months, the total deaths rose to 319 and the total discharges to 56. This means that at the end of one year, 47% of patients admitted to the state hospitals for the first time when they were 65 years of age had died and only 8% had left the hospital. Forty-five percent remained hospitalized.

At the end of the second year these percentages rose to 58% deaths, and 9% discharges, with 33% still living in the hospitals.

At the end of three years 24% were still in the hospital, 10% had been discharged and 66% were dead (Table 2).

The significant facts are that 16.7% of our patients died within the first months, almost one-half of them were dead within the first year and two-thirds were dead at the end of three years. It is also important to note that under conditions existing in the state hospitals between 1938 and 1943 only 10% of patients admitted over 65 years of age left the hospital alive.

TABLE 1

AGE, SEX AND COLOR DISTRIBUTION OF 683 FIRST ADMISSIONS OVER 65 YEARS OLD DURING 1938–1939–1940

Age groups	Male			Female			Total			Percent
	White	Colored	Total	White	Colored	Total	White	Colored	Total	
65–69	86	26	112	79	15	94	165	41	206	30
70–74	82	29	111	57	8	65	139	37	176	26
75–79	59	16	75	59	8	67	118	24	142	21
80+	73	11	84	66	9	75	139	20	159	23
Total	300	82	382	261	40	301	561	122	683	100
Percentage	78.	22.	100.	87.	13.	100.	82.	18.	100.	
	56%			44%			100%			

TABLE 2

PATIENTS OVER 65 YEARS OLD ADMITTED IN 1938–1939–1940 WHO DIED, WERE DISCHARGED OR REMAINED IN HOSPITAL THREE YEARS AFTER ADMISSION

Time after Admission	Age groups												Total		
	65–69			70–74			75–79			80+					
	In hospital	Died	Discharged	In hospital	Died	Discharged	In hospital	Died	Discharged	In hospital	Died	Discharged	In hospital	Died	Discharged
0–1 mon.	206	16	5	176	36	3	142	23	1	159	39	1	683	114	10
1–2 mon.	185	15	5	137	8	3	118	9	2	119	18	0	559	50	10
2–3 mon.	165	7	3	126	7	1	107	5	0	101	7	1	499	26	5
3–6 mon.	155	12	12	118	12	2	102	18	4	93	20	3	468	62	21
6–12 mon.	131	19	5	104	16	2	80	17	3	70	15	0	385	67	10
1–2 year	107	20	5	86	23	3	60	16	0	55	19	0	308	78	8
2–3 year	82	20	1	60	11	2	44	12	1	36	13	0	222	56	4
Total	61	109	36	47	113	16	31	100	11	23	131	5	162	453	68
Percentage	29.6	52.9	17.4	26.7	64.2	9.1	21.9	70.4	7.7	14.5	82.4	3.1	23.7	66.3	10.0

Stay in Hospital in Relation to Age, Sex, Race, Marital Status and Diagnoses

Age.—As would be expected, the older the patient on admission the shorter the stay in the hospital, the difference being accounted for by the increasing number of deaths among the older patients. At the end of the first year approximately half (52%) of the 65 years, while for those 80 or over 21% of the women and only 8% of the men are still in hospitals (Table 3).

Race.—Race did not have any great influence as to length of stay in hospital. We found 24% of the white and 23% of the colored still in the hospital at the end of the third year after admission. However, some small differences can be found in the per-

TABLE 3

Patients Dead, Discharged and Still in Hospital Three Years After Admission (by Sex)

Age groups	Sex													
	Male							Female						
	Admitted	Died	Percent	Discharged	Percent	In hospital	Percent	Admitted	Died	Percent	Discharged	Percent	In hospital	Percent
65–69..	112	63	56	23	20	26	23	94	47	50	11	12	36	38
70–74..	111	83	75	7	6	21	19	65	30	46	9	14	26	40
75–79..	75	58	77	7	9	10	13	67	42	63	4	6	21	31
80+...	84	73	87	4	5	7	8	75	58	77	1	1	16	21
Total..	382	277	73	41	11	64	16	301	177	59	25	8	99	33

TABLE 4

Patients Dead, Discharged and Still in Hospital Three Years After Admission (by Race)

Age groups	Race													
	White							Colored						
	Admitted	Died	Percent	Discharged	Percent	In hospital	Percent	Admitted	Died	Percent	Discharged	Percent	In hospital	Percent
65–69..	165	85	51	32	20	48	29	41	25	60	2	5	14	35
70–74..	139	81	58	14	10	44	32	37	32	86	2	5	3	8
75–79..	118	82	69	11	9	25	22	24	18	75	0	0	6	21
80+...	139	116	83	5	4	18	13	20	15	75	0	0	5	25
Total..	561	364	65	62	11	135	24	122	90	74	4	3	28	23

to 69 year old patients were still in hospital, while of those 80 years old or older only about one-third (34.6%) remained.

Sex.—At the end of three years almost twice as many women as men are still living in hospitals. As the age of patients on admission increases, the difference between the sexes becomes more marked. For the 65 to 69 year old group 23% of the men and 38% of the women are still in hospitals after three

centage of deaths; 65% among the white and 74% among the colored, and also in the percentage of discharges; 11% for the white, against only 3% for the colored (Table 4). The death rate was higher among colored patients and the age on admission seemed to have less influence on the death rate than it did for white patients.

Marital Status.—Studying the marital status of our patients in relation to the number

of deaths, we did not find any marked difference.

Diagnoses.—The whole group (683 patients) was formed of 37% psychosis with cerebral arteriosclerosis, 48% senile psychosis and 15% other diagnoses. Among the psychotics with cerebral arteriosclerosis, during three years, 66% died and 10% were discharged; among the seniles, 70.7% died and 5.7% were discharged; among the other diagnoses, 54% died and 21% were discharged.

Three years after admission, there remained in the hospital 24% of the psychotics with cerebral arteriosclerosis, 23.6% of the senile and 25% of the patients with other diagnoses. There were no sensible diagnostic differences in relation to stay in hospital. The psychoses with cerebral arteriosclerosis and the senile psychotic groups together account for 89% of all deaths occurring among our 683 patients during the first year, or for 88.3% of all deaths in three years.

Five to Six Years Survey

To find what happened to our patients over 65 years of age, five years after admission, we studied separately the group admitted in 1938 (239 patients). We tried to follow up the patients discharged, and, either by letters or by information collected by social workers, we obtained definite information in regard to 24 of the 37 discharged.

We found, among the 24 patients followed that 15 had died at home and 9 were still living; among the latter, 6 made very good adjustment in their home life. The results of the follow up (Table 5.) show that after five to six years 77.8% of our patients were dead, 10.4% were discharged (improved or unimproved) and only 11.7% were still living in the hospital.

Duration of Life

If we compare the duration of life of our aged patients in mental hospitals with the duration of life of people in the same age among the general population, we find, as we would expect, a much higher death rate among those suffering from mental illnesses. The contrast between the mortality rates during the first year of hospitalization and those in general population for persons in the same age group are shown in Table 6. The average mortality rates for each age group are calculated from life tables published by the U. S. Bureau of Census for the years 1939, 1940 and 1941. The mortality rates for patients over 65 years of age in mental hospitals are very high. According to our survey, the rates range from 2½ to 11½ times the rates in the general population, in the first year after admission.

TABLE 5

Patients Over 65 Years of Age Admitted in 1938. Follow-Up Five to Six Years

Time after admission	Age groups												Total					
	65–69			70–74			75–79			80—								
	In hospital	Died	Discharged	In hospital	Died	Discharged	In hospital	Died	Discharged	In hospital	Died	Discharged	In hospital	Percent	Died	Percent	Discharged	Percent
0–1 year	80	29	12	56	27	4	49	26	2	54	29	3	239	100	111	46	21	9
1–2 years	39	7	1	25	2	0	21	5	0	22	9	0	107	45	23	10	1	
2–3 years	31	6	0	23	4	0	16	3	0	13	5	0	83	35	18	7	0	
3–4 years	25	2	1	19	4	1	13	3	0	8	2	0	65	27	11	5	2	1
4–5 years	22	4	1	14	4	0	10	4	0	6	2	0	52	22	14	6	1	
5–6 years	17	4	0	10	2	0	6	1	0	4	2	0	37	15	9	4	0	
Total	13	52	15	8	43	5	5	42	2	2	49	3	28	12	186	78	25	10
Percent	16.	65.	19.	14.	77.	9.	10.	86.	4.	4.	91.	5.						

Summary

Studying all first admissions of patients over 65 years old to the state mental hospitals

in Maryland, during 1938, 1939 and 1940, we found:

(A) The group 65-69 years old was larger than the other groups; 65-69, 30%; 70-74, 26%, 75-79, 21%; 80 up, 23%.

(B) There were 12% more males than females. No significant difference was noted in regard to race. The percentage of negroes (18% for negro against 82% for white) corresponds to the proportion of negro population in the state. There is some difference regarding sex among the colored patients (65% colored male against 33% colored female).

(C) Regarding marital status, there were many more married (34%) and widowed (46%) than single (16%) and divorced (4%). Among the married, there were more male (73%) than female (27%); the same was observed among divorced (male 80% and female 20%). More than one-half of the patients over 75 years of age were widowed.

(D) Eighty-five percent of our patients over 65 years of age were diagnosed either as psychotics with cerebral arteriosclerosis (37%) or senile psychotics (48%).

Following up all patients for three years after admission, we found:

(1) In the first year 47% died and 8% were discharged as improved or unimproved. During the second year, 11% more died and 1% were discharged. In the third year, 8% died and only 0.6% were discharged. In three years there were 66% dead, 10% discharged and 24% remained under care in the hospital. Deaths occur soon after admission. Approximately 16% of all patients die during the first month, and 46% by the end of the first year. The death rate was higher for male patients (73% in three years), than for female (59% in three years).

(2) The great majority of discharges occurred in the first year following admission (82% of all discharged).

(3) In relation to diagnoses, 66% of the patients classified as psychosis with cerebral arteriosclerosis died as against 70.7% of the senile psychotics.

(4) Following up for five to six years the group of patients over 65 years of age admitted in 1938, we found that 77.8% died, 10.4% were discharged and only 11.7% remained under hospital care.

(5) The duration of life of our patients over 65 years of age was shorter than the average duration expected for the general population. For the first year after admission, the mortality rates were very high, ranging from 2½ to 11½ times the mortality rates expected for the general population.

TABLE 6

MORTALITY RATES

(Patients Over 65, Admitted in 1938, 1939 and 1940, Who Died During the First Year After Admission)

Age groups	Sex															
	Male								Female							
	White				Colored				White				Colored			
	Admitted	Died	Mortality rate	Average mortality rate for the general population	Admitted	Died	Mortality rate	Average mortality rate for the general population	Admitted	Died	Mortality rate	Average mortality rate for the general population	Admitted	Died	Mortality rate	Average mortality rate for the general population
65–69.....	86	31	360	44	26	15	577	51	79	22	278	32	15	2	133	44
70–74.....	82	42	512	64	29	18	621	65	57	16	281	52	8	2	250	54
75–79.....	59	33	559	99	16	10	624	89	59	23	390	84	8	5	625	70
80–95*.....	73	50	685	215	11	8	727	162	66	38	575	200	9	3	333	132

* Our oldest patient was not more than 95 years old when admitted.

Conclusions

Plans for hospital care for patients over 65 should include:

I. Plans for somewhat more male than female admissions.

II. The expectation of a very high death rate during the first months following admission.

III. The expectation of almost no discharges after the first year of hospitalization.

IV. The expectation that at the end of three years there will be almost twice as many women as men in the hospital.

V. The expectation that at the end of five years less than 15% of the patients will still be in hospitals.

THE MEMORY FUNCTION

I. A Factorial Study of Fifteen Clinical Tests

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1. Introduction

Tests of the memory function are of obvious importance to psychiatry in view of the fact that memory defects are considered symptomatic of various syndromes, such as senile dementia, the Korsakoff syndrome and brain injuries. A variety of so-called memory tests have therefore been developed for use by the clinician, which include such tasks as repeating a story, repeating digits or letters, describing pictures from memory, and many others of a similar kind.

Memory tests are also of importance to systematic psychology, where work on learning, retention, recall and recognition has made great strides since the early days of Ebbinghaus. In particular, interest has centered around the question of the exact status of "memory" within the total field of cognitive mental ability(33). The method most frequently used to attack this problem has of necessity been that of factor analysis.

There is considerable agreement among workers in this field that "memory" represents a group-factor within the wider field of cognitive ability; Anastasi(2, 3), Brener(6), Bryan(7), Carlson(9), Garrett(14), Holzinger *et al.*(17, 18, 19), Kelley(23), Spearman(34), Thurstone(35, 36), and Woodrow (40) have reported studies to this effect.

While such general agreement is welcome in a science which often shows extreme divergence of findings, closer scrutiny of the actual tests used and the methods of analysis employed, must make us chary of accepting the conclusions as established fact. For instance, Carlson(9) finds that "a general factor, common to all the tests in [his] battery, is by far the most important single factor involved in the memory of words." But his interpretation of this factor as one of "memory ability," while certainly inviting, does not by any means follow directly from his data; quite possibly we are dealing here simply with general mental ability (Spearman's "g" factor), expressed through the medium of memory tests.

A similar criticism is applicable to Brener's study of memory span(6). He finds high correlations between 13 different tests, administered under conditions of visual or auditory presentation. He accordingly concludes that there is "ability common to all of the tests. . . . . The general factor is tentatively described as the memory span factor." Again, the possibility remains that we are merely dealing with general intelligence, not with a special memory factor.

When it is further realized that of the tests used in all the studies mentioned, a large number were group tests, quite different in kind from the usual clinical tests, and that their interpretation as "memory" tests is often open to doubt, we must come to the conclusion that the existence of a group factor of "memory," linking together all the tests involving learning, retention and recall or recognition, is rather more questionable than appeared at first.

In the more clinical field of memory assessment, also, it appears at first sight that there is much agreement with regard to the existence of the "memory ability" discussed by the factor analysis. Wells and Martin(39), Simmins(32), and Landis and Rechetnick(24) found evidence of memory defects in senile dements, G.P.I. patients and epileptics, while finding little impairment in the "functional" groups tested. Others, such as Rawlings(29), Foster(13), Babcock(5), and Shakow, Doecart and Goldman(31) have found impairment in functional disorders also. Achilles(1), Liljencrants(25), Moore (27), and Wylie(41) have attempted to show differences between the psychoses by comparing test results obtained by different

[1] With the support of the Rockefeller Foundation.

procedures (method of recall *vs.* method of recognition).

While these various studies are of great interest, they fail to prove the existence of a separate "memory" ability for two reasons. In the first place, general intelligence has not always been partialled out, so that the relative contributions of intelligence and the hypothetical "memory" factor cannot be determined. In the second place, Hull(21, 22) and Wechsler(38) have shown reason to believe that the impairment found in various clinical groups is due to failure at the learning stage rather than to failure in retention; when material was learned to a certain standard by controls and patients of various clinical groups (paretics, schizophrenics, etc.), Hull actually found the patients superior in ability to reproduce the learned material after one week(22).

The real difficulty in accepting such evidence as has been presented, either factorially or clinically, in favour of the existence of a separate factor of "memory ability" lies in the impossibility of accepting the usual type of memory test as anything but a test of learning ability. Memory involves the three stages of learning, retention and recall or recognition; the usual tests of memory hardly ever proceed beyond the first stage, penalizing the tests so heavily for imperfect learning that possible differences in retention or recall are obliterated. Only when learning is eliminated as a factor, as in the Hull experiment, can retention be tested; but such elimination is hardly ever attempted in the usual type of memory experiment.

In the present study an attempt was made to investigate the factors active in 15 memory tests of the usual type, and to determine to what extent success in these tests was determined by intelligence. We hope to follow this up by an experiment in which a similar determination of factorial patterning is carried out for what we would regard as more genuine tests of "memory," *viz.* tests of retention in which the learning aspect has been equalized.

2. The Experiment

The subjects used in this investigation were all male neurotic army patients under treatment at the Mill Hill and Sutton Emergency Hospitals. They were selected on the basis of their scores on the progressive matrices test of intelligence(28), which is given routinely to all incoming patients. Previous work had shown that neurotics do not differ to any considerable extent from normal subjects with respect to intelligence, or to the degree of reliability of their test scores (11, 12, 15). Twelve patients were taken from each of the five selection grades as defined by the test, making 60 patients in all.[2]

In addition to the intelligence test, which was given as a group test, 15 memory tests were given to all the patients. These memory tests were given as individual tests, and are described below in some detail. As it seemed important to avoid fatigue in the patients, the memory tests were given in two groups, on separate days. On each occasion, the patient was tested for approximately 35 minutes; wide individual differences in testing time were encountered, however.

The series of memory tests comprised 10 auditory and 5 visual tests. They were given in the order as described below;

1. *Digits forward.*
2. *Digits backward.*

   These two tests were taken from the Bellevue scale(37), the procedure used there was taken over without modification.
3. *Cowboy story.*

   This story was taken from Henderson and Gillespie's textbook(16). It was read aloud by the experimenter to the patient; immediately afterwards the patient was given a "quiz" consisting of 16 questions relating to the story; one mark was allowed for each question answered correctly.
4. *Photograph recognition.*

   This test consisted of 12 black and white head-and-shoulder photographs of American men appearing in an issue of *Time*. They were uniform in size and all were full-face. Three of the photo-

[2] It is customary to divide subjects into five grades on the progressive matrices test: grade I, including the highest 10%; grade II, the next 20%; grade III, the middle 40%; grade IV, the next 20%; and grade V, the lowest 10%.

graphs were placed in front of the patient for 30 seconds; they were then returned to the pack, which was shuffled. The patient was asked to pick out the three photographs he had just seen, and place them face upwards in the same order on the table. This procedure was repeated with 4, 5, 6, 7 and 8 photographs. The cards were numbered on the back, and each series presented followed the same number-sequence as was used in test 1. A score of 2 was given for each card correctly placed in order. If a card was correctly chosen but placed out of order in the sequence, a score of 1 was given.

5. *Paired associates.*

A selection of 10 word-pairs was made from Babcock's scale(4). Each pair of words was read aloud with an interval of 2 seconds between pairs. After a short pause the experimenter read the first word of each pair, and the subject had to say the associate word. Each correct response scored 1 point.

6. *Cube imitation (Knox).*

Four cubes are placed in front of the patient. With a fifth cube the experimenter taps the four cubes according to a number sequence, and the patient has to do the same immediately afterwards. The number-series increase in difficulty. One point is awarded for each correct sequence. The procedure was taken without modification from Cattell(10).

7. *Word recognition.*

Twenty words were selected from the Babcock test(4); 10 of these were read out at the rate of one per second. Then the complete list was read, and the patient had to indicate in response to each word whether or not it was one of the original ten. Each correct reply scored 1 point.

8. *Donkey story.*

This story was taken from Henderson and Gillespie's text-book(16). After the story was read aloud by the experimenter, the patient was asked to reproduce as much of it as possible in his own words. The story was divided into 41 "ideas," each scoring 1 point.

9. *Designs recognition.*

This test was similar to test 4 in all respects, except that designs, taken from Hornung's book(20), took the place of photographs.

10. *Letters forward.*

11. *Letters backward.*

These two tests were similar to tests 1 and 2 in all respects, except that letters took the place of digits.

12. *Word Memory.*

Six series of monosyllabic words, consisting of 3, 4, 5, 6, 7 and 8 words respectively, were read aloud by the experimenter, and the patient was asked to repeat them. Each word reproduced in correct order was scored 2 points; a score of 1 was given to a word correctly reproduced but not in order. This test was taken from(8).

13. *Sentence memory.*

This test was taken from Babcock(4). Ten sentences of increasing length were read aloud by the experimenter, and the patient was asked to repeat each one immediately. The scoring was different from Babcock's, each word correctly reproduced being allotted 1 point.

14. *Design reproduction.*

This test, taken from Rey(30), falls into two parts. In the first, the patient copies a complex design from a card. Test 15 is then interposed. Finally the patient is required to reproduce the design from memory. Our scoring procedure followed that of Rey. This is the only test of incidental memory in our battery.

15. *Picture memory.*

A card with 16 objects drawn in ink was put in front of the patient for 30 seconds. It was then removed, and the patient had to enumerate as many of these objects as possible. Each object correctly remembered scores 1 point.

3. Results

Tetrachoric correlations were run between the 15 memory tests used, and are reported in Table 1, together with Spearman rank-correlations (corrected) between scores on these 15 tests and scores on the intelligence test. (The distribution of scores on the

memory tests was sufficiently normal to permit use of the tetrachoric co-efficient. The distribution of scores on the intelligence test being rectangular rather than normal because of the selection of subjects, we thought it more appropriate to use Spearman's rho, rather than the tetrachoric coefficient which presupposes a normal distribution of scores.)

general factor, accounting for 74% of the variance, was found sufficient to account for all the correlations within the limits of the probable error; none of the residuals was statistically significant. Also given in Table 2 are the means, standard deviations, and coefficients of variation of the various tests.

The nature of the general factor found

TABLE 1

Test No.:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.	..	.74	.58	.78	.46	.70	.44	.87	.75	.82	.70	.67	.78	.71	.41	.71
2.		..	.67	.71	.51	.81	.35	.78	.68	.70	.90	.71	.82	.82	.41	.89
3.			..	.72	.71	.63	.54	.84	.82	.94	.70	.60	.67	.69	.42	.78
4.				..	.67	.81	.82	.95	.98	.82	.82	.84	.72	.92	.71	.87
5.					..	.67	.60	.81	.71	.49	.67	.59	.51	.67	.55	.67
6.						..	.59	.86	.84	.64	.81	.78	.77	.87	.71	.81
7.							..	.74	.82	.78	.67	.56	.43	.69	.74	.67
8.								..	.94	.86	.84	.80	.87	.89	.70	.81
9.									..	.80	.78	.89	.76	.87	.74	.84
10.										..	.95	.88	.57	.88	.42	.88
11.											..	.92	.78	.93	.63	.96
12.												..	.69	.89	.59	.84
13.													..	.80	.59	.72
14.														..	.63	.92
15.															..	.63
16.																..

TABLE 2

		Factor-Saturation	Mean Score	S.D.	Coefficient of variation
1.	Digits forward	.78	6.9	1.3	19
2.	Digits backward	.81	4.9	1.5	31
3.	Cowboy story	.80	10.0	3.8	38
4.	Photo recognition	.95	51.0	15.9	31
5.	Paired associates	.72	4.7	2.7	57
6.	Cube imitation	.88	7.2	2.4	33
7.	Word recognition	.73	16.7	3.3	20
8.	Donkey story	.98	18.9	7.7	41
9.	Design recognition	.96	48.2	15.2	32
10.	Letters forward	.89	6.2	1.4	23
11.	Letters backward	.94	4.5	1.1	24
12.	Word memory	.88	44.0	10.4	24
13.	Picture memory	.81	10.6	3.2	30
14.	Sentence memory	.95	17.3	4.4	25
15.	Design reproduction	.68	27.5	10.9	40
16.	Intelligence	.94	...	...	..
	Variance:	.74	Average:		31

It will be seen that all the correlations are positive, and that most of them are comparatively high. The correlations between the various memory tests and the intelligence test are seen to range from +0.63 to +0.96.

A factor analysis was carried out on the correlations reported in Table 1, the results of which are given in Table 2. The method of analysis used was Burt's summation method with successive approximations. One

cannot be decided by mere inspection. Seeing that 15 out of 16 tests used were "memory" tests of the usual type, it would be tempting to identify the resulting factor as a "memory" factor. A statistical examination shows that such a procedure would be definitely fallacious.

Seeing that all the memory tests correlate with the intelligence test, the question that has to be answered is: With the influence of

intelligence excluded, does anything remain which is common to all or nearly all of the memory tests? Two methods of answering that question suggest themselves.

If the factor which is being measured by the intelligence test were identical with the factor which is being measured by the 15 memory tests, then we should be able to treat the correlations of each of these memory tests with the intelligence test, corrected for attenuation,[3] as factor saturations; it would follow that the product matrix calculated by multiplying these correlations should be approximately identical with the actually observed correlations between the 15 memory tests. This is indeed the case, as can be shown by subtracting the product matrix thus derived from the original matrix of intercorrelations: the residual matrix contains only one correlation more than twice the size of the S.E. of a zero correlation, and in a table of this size, we would expect at least one correlation of this size by chance. The average of the residual correlations, calculated regardless of sign, is only +0.09. Thus we can account for all the observed correlations without the necessity of postulating a memory group factor in addition to a general factor of intelligence.

A second method of proof also follows from the general theory of factor analysis (*cf.* Burt, C., "Factors of the Mind," or Thurstone, L. L. "Vectors of Mind.") The matrix test is known to be an almost pure test of "g" or general intelligence; in other words, its validity as a test of "g" is a function of its reliability, being equal to the square root of its reliability. Now if the battery of memory tests measured "g" purely, and without any admixture of a memory group factor, then this total battery of 15 tests should be a good approximation to a pure "g" estimate. That being so, the saturation of the matrix test for the general factor found in the analysis of the total battery of 16 tests should be equal to the square root of its reliability. This is indeed the case, and we may argue back from this finding that our assumption regarding the nature of the battery of 15 tests was justified, *viz.* that these tests did not contain any factor over and above "g."

Our two methods of analysis, then, agree in showing no evidence of a group factor of memory. Because of the small number of subjects used, and because many other tests of memory apart from those used could be devised and might give different results, we do not claim to have disproved the possible existence of such a factor. We do claim, however, that if such a factor exists its contribution to the total score must be small as compared with the contribution of general intelligence, and that no assessment of memory ability is possible by the use of the tests examined.

4. Discussion

There are various points in connection with this research which require discussion. The first point relates to the selection of patients. In many ways it would have been preferable to have dealt with patients distributed normally with regard to intelligence, rather than with a sample giving a rectilinear distribution, such as ours. The main reason for choosing our sample in such a way that the five selection grades were represented equally was simply that we wanted to get tentative norms for the various tests used, for each of the selection grades separately; had we selected a normally distributed sample there would have been too few patients in grades I and V to give us norms of any value whatever.

One effect of this choice of subjects is of course that all the correlations between the various tests are rather higher than they would otherwise have been; this is an inevitable consequence of the greater heterogeneity of the sample. But there is no reason to suppose that this greater heterogeneity would tend to mask a factor of "memory ability," had such a factor been present; thus our main conclusion remains unaffected by the abnormal distribution of our subjects with regard to intelligence.

A second point relates to the question of

[3] That is to say, attenuation arising through the lack of complete reliability in the intelligence test. The unreliability of the memory tests affects equally their correlations with each other and with intelligence. The reliability of the intelligence test was determined by retesting a sample of 60 patients whose scores on the matrix test were distributed similarly to those of our experimental population, and was found to be $+0.89 \pm .03$.

whether results derived from testing neurotics can have any general validity. There seems little reason for assuming that cognitive organization is essentially different for neurotics, as compared with the normal population; certainly our experience with other cognitive tests does not support such a view (11, 12, 15). While we believe that a repetition of the experiment with larger samples of both tests and subjects, normal and abnormal, would throw further light on this vexed question of "memory," we also believe that our results are sufficiently definite to allow us to say that the practice of testing memory by the usual clinical tests is unsound, and that these tests measure intelligence rather than memory. While it is possible that a slight memory factor may have escaped through the none-too-fine meshes of our probable errors, its contribution to the total score on any of the memory tests examined would not be large enough in any individual case to outweigh the much more considerable contribution of the general cognitive factor.

5. Summary and Conclusion

Fifteen individual memory tests and one intelligence test were given to sixty male neurotic army patients at Mill Hill and Sutton Emergency Hospitals. The scores on these 16 tests were intercorrelated, and the resulting table factor-analyzed. The following results were found:

1. All the memory tests correlated positively with the intelligence test, the correlations varying from +0.63 to +0.96.

2. One general factor accounted for all the correlations in the table within the limits of the probable error; this general factor accounted for 74% of the variance.

3. It was shown by two separate methods that the general factor found could be equated with general intelligence, or "g," and that all the correlations in the table could be accounted for without the necessity of postulating a "memory" factor.

4. The conclusion was drawn that the ability involved in the clinical tests of "memory" studied in this research was identical with that involved in the intelligence test used, and that therefore it was misleading to accept scores on these various tests as estimates of a person's "memory" ability.

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CLINICAL NOTE ON THE SIGNIFICANCE OF THE VALIDITY SCORE (F) IN THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY [1]

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Since the first publication of the Minnesota Multiphasic Personality Inventory [2] in the *Journal of Psychology* in 1940, this instrument of psychological testing has come into wide-spread use in the psychiatric clinics of this country.[3] The inventory has been made a part of the psychological examination in most of the clinics of the Second Air Force Personnel Consultation Services and has been made available to all United States army medical installations.

In view of the wide-spread utilization of the M.M.P.I. and in view of the fact that it is still a relatively uncontrolled measure, it is felt that any contributions which throw additional light on the significance of these scales will be worthwhile. It is for this reason that the following clinical note is made.

Hathaway and McKinley have established three scores to check the validity of their inventory: the Question (?), the Lie (L) and the Validity (F) scores. Concerning the F score, they write in their manual,[4] "The F score is not a personality scale but serves as a check on the validity of the whole record. If the F score is high, the other scales are likely to be invalid either because the subject was careless or unable to comprehend the items, or because someone made extensive errors in entering the items on the record sheet. A low F score is a reliable indication that the subject's responses were rational and relatively pertinent." To quote further,[5]

> The F score is derived from a group of 64 items that have been very infrequently answered in the scored direction by normal persons. All the items are answered in the infrequent direction less than 10 percent of the time by normals, and the percentage is but little higher for miscellaneous abnormal subjects. Very few of the items are intercorrelated to a significant extent; therefore, these items as a group do not form a scale in the usual sense but merely indicate whether or not the subject has made many responses that are avoided by most persons. In fact, if the items are examined it will be seen that a high score could not indicate any known pattern of symptoms.
>
> F scores will validly be somewhat high for certain persons. These are most often of two types: first, some persons who are highly individual and independent may honestly make infrequent responses to items making up the F score. For example, they may admit to disliking children and not believing their mother was a good woman. Second, a number of rather badly neurotic or psychotic subjects obtain high F scores validly. These persons are betrayed by their very high scores on other scales; a short talk with a subject will quickly reveal his multitude of unusual complaints if he belongs to this group. When in doubt, it is best to be very cautious in accepting a profile with a high F score.
>
> . . . . Scores above 70 indicate the whole record to be invalid, except in the special cases mentioned above. This invalidity may be a result of clerical errors in recording or of carelessness or poor comprehension on the part of the subject. A clerical error that occasionally occurs is the reversal of the 'true' and the 'false' packs. Scores from 60 to 70 are increasingly open to suspicion. An average score of from 50 to 60 is a reliable sign that item comprehension and clerical work have been satisfactory and that the subject is similar to persons in general.

OBSERVATIONS ON THE F SCORE

Our observations were made in an active army personnel consultation service (mental hygiene unit). For the most part the patients of the service consisted of maladjusted individuals ranging over a wide psychopathological area from situational problems to pre-psychotic personalities. This group was restricted insofar as its members were of induction age (18-38), predominantly male soldiers, and, it must be repeated, largely morbid personalities. Such a group would presumably correspond to the one studied by

[1] From Second Air Force Personnel Consultation Service, Peterson Field, Colorado.

[2] Hereafter abbreviated M.M.P.I.

[3] Leverenz, C. W., Major, MC, AUS. Minnesota Multiphasic Personality Inventory: An evaluation of its usefulness in the psychiatric service of a station hospital; *War Medicine*, 1943, Vol. 4, pp. 618-629.

[4] Hathaway, S. R. and McKinley, J. C., The Minnesota Multiphasic Personality Inventory. University of Minnesota Press, Minneapolis. 1943.

[5] Idem, p. 8.

the originators of the M.M.P.I. from the neuropsychiatric division of the University of Minnesota Hospital.[6]

In the utilization of the Minnesota inventory in this unit, a particular effort was made to administer it to those individuals with the minimum requisite intelligence, patience and cooperativeness. No attempt was made to have all patients take the inventory. The test was administered to 170 of the 300 patients seen between July 1944 and January 1945. In most instances a good degree of cooperation was elicited.

However, while administering the test to this comparatively small group of individuals, some discrepancies with the above quoted opinions of the authors have been noted. It does not appear tenable, from our observations, to hold that "All the items (of the F score) are answered in the infrequent direction less than 10 percent of the time by normals, and the percentage is but little higher for miscellaneous abnormal subjects." On the other hand, our findings seem to confirm the statement that "A number of rather badly neurotic or psychotic subjects obtain high F scores validly."

Of the 170 clinic patients who took the M.M.P.I., 37 (22 percent) had F scores of 70 (borderline abnormality) or above (frankly abnormal). In order to attain such a score, the individuals had to answer at least 12 of the 64 questions composing the F group in the scored direction. Actually, the number of questions so answered varied from 12 to 33, with two-thirds of the patients making between 13 and 19 pathological responses. To give an idea of what questions were most frequently answered incorrectly by these individuals, the following eight examples are quoted. Responses to these items were made in the scored direction by at least half of all patients receiving high F scores.

1. A-15 I am troubled by attacks of nausea and vomiting. (T.)
2. B-35 I have nightmares every few nights. (T.)
3. C-41 I like to study and read about things that I am working at. (F.)
4. E-21 I am never happier than when alone. (T.)
5. F-1 Most any time I would rather sit and daydream than to do anything else. (T.)
6. G-53 If people had not had it in for me I would have been much more successful. (T.)
7. H-27 I like to visit places where I have never been before. (F.)
8. I-8 No one cares much what happens to you. (T.)

Of the 37 inventories characterized by high F scores, it may be said that 35 gave a clearly valid picture of the personality of the patient who took the test. The two remaining inventories were probably invalid in the sense described by the originators of the M.M.P.I. One subject apparently answered the test honestly and then deliberately reversed the 'true' and the 'false' piles of cards. In this case there were certain evidences of psychopathic behavior, probably not pathological in degree. The second patient had a high F score with *no* other pathological peaks. It is to be noted that in this instance, a diagnosis of moderately severe psychoneurosis had been made clinically. Of all 37 cases, only these two had high Lie as well as high F scores. Their records were considered invalid and therefore eliminated from the study. In addition, two of the other patients were of rather low intelligence (AGCT low Group IV). Though they were able to read, there was some doubt as to their ability to comprehend the questions. It was finally decided that their responses could be considered valid.

Among the inventories with authentic high F ratings, the average number of pathological scores in the other scales (*i.e.*, scores of 70 or above) was six out of a possible nine. No patients with valid high F scores had fewer than four pathological peaks and two had as many as nine.

Reevaluation of F Score

It appears, then, that in the total of 37 individuals with a pathological F score, 35 tests were definitely valid. In these 35 cases the clinical diagnoses made are shown in Table A.

Except, possibly, for the two cases of situational maladjustment, each high F score corresponded to a significant degree of personality disorder. Of the 35 men, six have been discharged from the Army and 29 returned to duty. Of the latter group, in turn, ten have been recommended for discharge while three others have a very poor prognosis for future military adjustment.

[6] Idem, p. 3.

It is interesting that in this group of 35 soldiers, only ten would be considered suitable for induction today after even superficial psychiatric screening. Three would be of questionable inductibility, and 22 should, in retrospect, never have been inducted. This

TABLE A

CLINICAL DIAGNOSES OF PATIENTS WITH ABNORMALLY HIGH F SCORES

Psychoneurosis:	
Severe	4
Moderate	11
Mild	3
Constitutional psychopathic state	8
Inadequate personality	3
Situational maladjustment	2
Psychotic and pre-psychotic	4

means that in the case of 75 percent of the patients with a valid high F score, induction into the Army was not warranted, and would *not* have occurred had adequate psychiatric screening measures been available.

A survey of the 133 remaining patients with a normal F score was made by way of comparison. Since each of the inventories with the "invalidating" F score had at least four other pathological areas, a count of the tests with normal F scores was made to determine how many of these contained four or more pathological areas. Only 35 such were found. In other words, exactly half of all the patients with four or more pathological scores also had a so-called "invalidating" F score. This observation would indicate that the high F score has a definite psychopathological connotation, probably reflecting significant personality disorder manifested in scattered psychological areas. Such an F score would definitely *not* be construed as an invalidating score but rather as an ominous warning of diffuse and deep-seated psychiatric disease.

CONCLUSIONS

1. It is submitted that a high F score in the M.M.P.I. is only very rarely an invalidating factor in the consideration of *abnormal* subjects. Generally it indicates the presence of significant and often severe psychiatric disease.

2. More controlled work must be done on this score of the M.M.P.I. before it can be accepted as a definitive part of the inventory.

BILATERAL INTERNAL JUGULAR BLOOD[1]

Comparison of A-V Differences, Oxygen-Dextrose Ratios and Respiratory Quotients

E. L. GIBBS, W. G. LENNOX, M.D., and F. A. GIBBS, M.D.

The technique of puncture of the internal jugular vein has made studies of the cerebral blood flow and of the cerebral metabolism possible. Jugular puncture was first used by Myerson, Halloran and Hirsch(1). Our own studies have extended over a dozen years. Various uncertainties exist regarding the dependability of this method of observing the cerebral circulation and metabolism. One question is whether the composition of the blood in both internal jugular veins is the same. Gibbs and Gibbs(2) measured the torcular and associated veins from 25 human corpses. They reported that blood from the straight sinus tended to flow into the left lateral sinus, and blood from the superior sagittal sinus tended to flow into the right lateral sinus. Of the two lateral sinuses, the right was usually larger than the left. Since the metabolic rate of the cortex is presumed to be higher than that of the subcortex, the blood draining these different areas might differ in composition. As early as 1932 we made some preliminary observations which did not disclose significant differences in blood from the two internal jugular veins but the blood was not drawn from the two sides simultaneously.

This report deals with 25 cases in which blood was drawn simultaneously from both right and left internal jugular veins and from an artery. In addition, in 14 of these cases samples were drawn both consecutively and simultaneously from the veins and in 7 the effect of overventilation on bilateral samples was observed.

Material and Methods.—Subjects used for these observations were schizophrenic or epileptic patients. Of the 18 without unilateral cerebral pathology, 14 were schizophrenic and 4 were epileptic. Seven patients, all but one epileptic, had evidence of one-sided cerebral pathology.

The technique of puncturing the internal jugular vein which we use varies somewhat from that described by Myerson and associates. The subject lies flat on an examination table without pillow but also without the hyperextension of the head described by Myerson. The head is turned strongly to the left. With his left forefinger the examiner determines the position of the tip of the patient's mastoid process below the lobe of the ear. The point of a 26 gauge hypodermic needle is introduced into the skin at a point approximately 1 cm. below and anterior to the tip of the mastoid. In most subjects this point is 1 or 2 cm. below the center of the lobe of the ear. After a 2 percent solution of novocain, without adrenalin, has been introduced into and under the skin at this point, the needle is then pointed upward at an angle of from 45 to 60 degrees from the plane of the neck, with the purpose of puncturing the internal jugular vein immediately after it leaves the jugular foramen and above any extra cranial contributories. (Myerson introduced the needle perpendicularly.) The anterior-posterior direction of the needle—in relation to the subject's head and neck—is more important than its longitudinal direction. The needle, pointing upward at a 45 to 60 degree angle, is also pointed in an imaginary plane which passes through the posterior edge of the external auditory meatus. Tendons and tissues are novocainized as the needle is pushed slowly through them. This is also a pathfinder process. If the mastoid, styloid process or other bony obstruction is encountered this route cannot be used and the direction of the needle is changed upward or downward in order to escape the bony obstruction. The anterior posterior direction, however, is not altered; the needle still points in the plane going through the posterior edge of the ex-

[1] From the Boston Psychopathic Hospital and the Department of Diseases of the Nervous System of the Harvard Medical School. Aid was received from the Scottish Rites Fund and the Rockefeller Foundation.

terior auditory meatus. If bone is not encountered by the 2.5 cm. needle, it is withdrawn and the needle and syringe used for drawing blood is substituted. The deeper non-bony structures are relatively insensitive, and deep infiltration of novocain into them may cause temporary paresis of the facial nerve.

For puncturing the vein we use a lumbar puncture needle, 5 cm. in length, with somewhat sharpened bevel and fitted with a stilet. The gauge depends on the projected procedure. For obtaining a single sample a 21 gauge is sufficient, but for observations in which the needle remains for long periods within the vein, as much as an 18 gauge needle is used, as a safeguard against clotting. The oiled syringe with the oil filled needle attached, is held in the right hand as a pencil is held, except that the barrel of the syringe crosses the second rather than the third joint of the index finger. The little finger rests firmly on the neck where it serves to steady the syringe, prevents any sudden thrust and also serves to obstruct and distend the internal jugular vein. The needle is inserted along the path that has been novocainized. At first the bevel is perpendicular for ease in penetrating the tendons of the neck muscles, then it is pointed upward. Myerson used a single deep thrust, but we prefer to push the needle slowly and steadily until a depth of 3 cm. is reached when gentle traction on the plunger of the syringe is begun with the left hand. Entrance to the vein is usually signalled by release of resistance much like that experienced when the lumber puncture needle penetrates the dural sac; at this point, under traction of the plunger, venous looking blood enters the syringe. The depth varies from 3.5 to 5 cm., depending on the thickness of the neck and the angle of the needle. If blood is not obtained, the needle is very slowly withdrawn with continued slight traction on the plunger. Occasionally, the entering needle seems to compress the vein and blood is obtained on withdrawal rather than on entrance of the needle. In such instances, however, difficulty may be encountered with withdrawal of successive samples. If the flow stops suddenly, rotation of the needle so that the bevel is parallel to the vein may allow flow to be resumed. After the syringe has been filled and detached, if successive samples are to be withdrawn, the needle is filled with a solution of heparin before the stilet is replaced. If the puncture is a clean one, the patient's head may be moved about or he may be tilted to an erect position without displacement of the needle. When displacement does occur, the needle has usually worked out of the vein and needs to be pushed back in.

The puncture is usually accomplished without pain or undue discomfort to the subject. However, pain invariably follows if the needle encounters periosteum. If the direction of the needle has to be altered in either plane from that described, the subject is more likely to experience pain which may be referred to throat or ear. Accidental puncture of the internal carotid artery makes the region unduly sensitive to further probing, and efforts to obtain internal jugular blood are transferred to the opposite side.

Of possible complications, the most frequent is temporary facial paralysis resulting from novocainization of the nerve. This rarely happens if a 2.5 cm. needle is used. In the several hundred punctures we have made there have been only 2 with more serious complications. One was injury of a facial nerve with resulting Bell's palsy which required two months to clear. The second was production of an aseptic meningitis through introduction of blood into the subarachnoid space. In this subject, a healthy medical student, spinal fluid was encountered no more than one-fourth inch deeper than the point from which internal jugular blood was being drawn. Roentgen films did not show any bony anomaly in this area.

For bilateral punctures, after the needle is inserted in the right vein, the occiput of the patient's head is placed on a folded towel and his head turned strongly to the right. The procedure is then carried out on the left side; for a right handed person a somewhat more clumsy procedure. With both needles in position another operator punctures a radial or brachial artery, stilets are removed from the internal jugular needles, and blood is drawn simultaneously from the three vessels. In this series of experiments there were 2 failures to place the needles in both jugular veins and 25 successes. When puncture of

only one jugular is attempted, failure to secure the desired blood, in our experience, occurs about one time in 20.

In these observations, blood was taken under oil, the tubes placed on ice and analysis begun within a few minutes after the last blood was drawn. Blood gases were measured by the manometric method of Van Slyke and blood sugar by the method of Folin-Wu.

Differences in Oxygen Content.—The accompanying table gives values of the oxygen, carbon dioxide and glucose of arterial and venous blood, and calculated respiratory quotients, as well as glucose-oxygen ratios of the brain.

Regarding the oxygen content of blood, in our experience the range of experimental error in successive analyses of the same blood sample is 0.5 volumes percent. Comparing the oxygen content of the blood from the two sides, the difference was less than 0.5 volumes percent in 15; from 0.5 to 0.9 in 4; from 1.0 to 1.9 in 4; and more than 2.0 volumes percent in 2. Expressed as percentage of deviation from the side with the higher oxygen content, this difference was less than 1 percent in 12 cases, from 1 to

COMPARISON OF BLOOD FROM ARTERY AND RIGHT AND LEFT INTERNAL JUGULAR VEINS

	Diagnosis	Arterial Blood				Internal Jugular Blood								Respiratory quotient		Glucose O_2 Ratio	
		O_2 content vol. percent	O_2 capacity vol. percent	CO_2 content vol. percent	Glucose mg. percent	O_2 content vol. percent		O_2 saturation percent		CO_2 content vol. percent		Glucose mg. percent					
						Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left
1	D.P. Paranoid	19.36	20.60	47.45	104	10.81	13.35	52.5	64.8	55.00	53.46	86	92	0.90	1.00	2.10	2.00
2	D.P. Paranoid					12.80	17.52	58.2	74.4	54.89	50.27	100	110				
		21.98	23.52	49.45	129	14.86	16.09	67.6	73.2	55.75	54.43	107	113	0.88	0.85	3.08	2.71
3	D.P. Paranoid					10.83	11.30	60.5	63.1	58.75	58.25	87	88				
		16.86	17.90	52.82	95	10.85	11.30	60.6	63.1	58.77	58.30	86	87	0.99	0.99	1.49	1.44
		*				7.96	9.86	44.5	55.1	57.17	55.51	80	84				
4	D.P. Paranoid	19.96	21.45	49.41	102	12.60	12.63	58.8	58.9	56.85	56.81	93	93	1.01	1.01	1.23	1.22
5	D.P. Paranoid	19.06	20.31	50.58	115	13.82	13.27	68.1	65.3	55.84	56.33	105.5	104	1.00	1.00	1.81	1.90
6	D.P. Paranoid	20.36	21.80	44.51	86	14.05	14.04	64.4	64.4	50.92	50.72	79	79	1.02	0.98	1.11	1.11
7	D.P. Paranoid	18.00	19.08	47.87	95	12.00	12.01	62.9	62.9	53.85	53.93	85	85	1.00	1.01	1.66	1.66
8	D.P. Catatonic	20.72	22.24	48.02	95	13.68	13.63	61.6	61.5	54.86	54.90	83.5	83.5	0.97	0.97	1.63	1.63
9	D.P. Depressed					12.40	12.42	62.9	62.9	57.54	57.50	105	106				
		18.64	19.76	51.25	111	12.23	12.22	61.8	61.8	57.79	57.70	100	100	1.01	1.00	1.72	1.72
		*				8.51	9.32	43.1	47.2	55.33	54.61	100	102.5				
10	D.P.					12.42	13.86	59.2	66.1	57.31	56.03						
						13.26	13.84	63.2	66.1	56.54	56.13	82	83.5				
		19.67	20.98	50.24	97.5	13.28	13.85	63.3	66.1	56.67	56.04	85.5	86.5	1.00	1.00	1.88	1.89
11	D.P.					10.78	10.72	52.2	52.1	58.85	58.88	93	93				
		19.28	20.58	50.84	113	12.28	12.46	59.7	60.5	57.92	57.74	101	101	1.01	1.01	1.72	1.76
12	Korsakoff's					9.65	12.78	57.9	76.6	55.37	52.30						
		15.62	16.68	49.57	100	9.39	13.29	56.3	79.7	55.75	51.90	84	94.5	0.99	1.00	2.56	2.36
13	Psychosis—undiagnosed	19.80	21.00	47.66	99	13.84	13.78	65.7	65.6	53.60	53.68	91	91	1.00	1.00	1.38	1.33
14	Suicide? D.P.					14.62	14.64	68.4	68.4	55.92	55.90	85	86				
		20.16	21.37	50.41	93	14.60	14.62	68.3	68.3	55.03	55.98	85	86	1.00	1.01	1.45	1.27
15	Epilepsy Psy.	20.06	21.18	47.24	96	10.48	10.22	52.2	50.9	55.97	56.33	84	82	0.91	0.92	1.25	1.41
16	Epilepsy Psy.	20.79	21.98	51.85	90.5	12.90	12.91	58.7	58.7	59.44	59.43	82	82	0.96	0.96	1.08	1.08
		*				9.20	9.24	41.9	41.9	57.28	57.22	78	78				
17	Epilepsy G.M.	16.19	17.14	51.46	108	10.73	10.75	62.7	62.7	56.99	56.88	100	100	0.98	1.00	1.47	1.47
18	Epilepsy G.M.					15.14	15.05	70.1	70.0	56.78	56.82	94	94				
	P.M.	20.07	21.51	51.68	100	15.06	15.10	70.0	70.1	56.69	56.72	94	94	1.00	1.01	1.20	1.20
19	Parkinsons—unilateral	18.40	19.60	49.09	90	10.46	10.46	53.4	53.4	56.95	56.88	86	86	0.99	0.98	1.64	1.64
20	Brain abscess—left					14.60	13.56	69.1	63.9	56.92	58.14	83	85				
		20.03	21.24	52.05	95	14.70	13.56	69.4	63.9	57.24	58.47	84	86	0.98	1.00	1.69	1.70
21	Aphasia—left handed					10.34	10.34	62.3	62.3	52.04	52.02	87	87				
		15.56	16.60	47.07	95	10.34	10.30	62.3	62.2	52.28	52.28	87	87	1.00	0.99	1.54	1.54
22	Rt. hemangioma					12.94	12.90	62.8	62.7	55.40	54.50	98	98				
	Rt. lobectomy	19.22	20.60	48.57	106.5	13.20	13.28	64.3	64.4	54.52	54.40	100	100	0.99	0.98	1.40	1.43
	Lt. seizures	*				10.11	9.11	49.1	44.2	50.25	51.26	89	89				
23	Lt. hemangioma					11.14	10.10	65.9	59.7	57.89	59.14	108	109				
	Rt. seizures	15.73	16.91	53.34	116	12.03	10.35	71.1	61.2	57.06	58.62	108	110	1.00	0.98	1.49	1.02
		*				10.11	8.42	59.6	49.8	55.77	57.58	98	100				
24	Epilepsy					13.65	13.25	68.2	66.3	56.40	56.78	83	83				
	Birth injury	18.81	20.02	50.22	93	13 29	12.74	66.4	63.6	55.70	56.30	83	82	1.00	1.00	1.80	1.81
	Rt. side small	*				8.28	7.81	41.7	39.0	53.58	54.28	70	69				
25	Epilepsy					14.12	12.52	67.4	59.8	53.80	55.39	78	76				
	Dilated lt. ventricle	19.70	20.94	49.70	88.5	15.03	13.78	71.8	65.8	54.36	55.54	81.5	79	1.00	0.99	1.50	1.60
	Rt. arm small	*				9.34	8.61	44.6	41.1	53.28	53.87	70	69				

* Overventilation. Psy. = Psychomotor. G.M. = Grand Mal. P.M. = Petit Mal.

4.9 percent in 5, from 5 to 9 percent in 5, and above 10 percent in 3 (19—19 and 29 percent). Of cases differing by more than 5 percent, 4 were patients with psychosis (1, 2, 9 and 12 in the table) and 4 were patients with unilateral cerebral pathology (20, 23, 24, and 25 in the table). Of the 3 cases with unilateral pathology but without significant differences in the oxygen of the

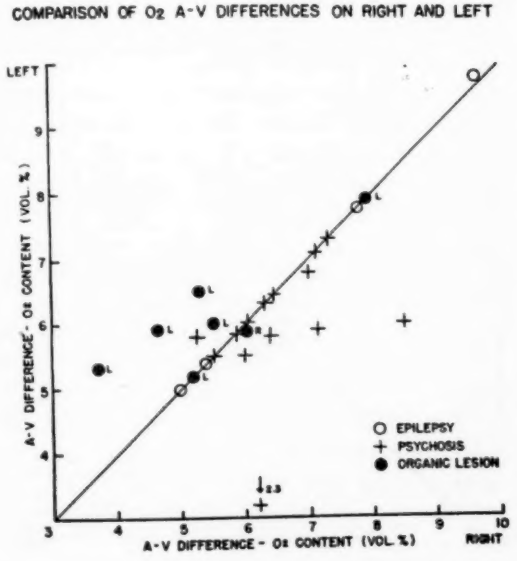

FIG. 1.—This figure affords a comparison of the A-V difference in the oxygen content of blood from the artery and from the internal jugular veins of the two sides. The difference between artery and left internal jugular is represented by the ordinate, and between artery and right internal jugular vein by the abscissa. A-V differences which are the same for the two sides fall along the diagonal. If they fall to the left of this diagonal, the A-V difference on the left is greater than on the right, which might indicate on the left a slower blood flow or a greater metabolic activity, or both. Crosses indicate subjects with psychosis, circles subjects with epilepsy and solid dots subjects with evidence of one-sided cerebral pathology.

two sides (cases 19, 21 and 22) one had unilateral tremor, and another had aphasia as the only evidence of pathology.

Our data permit calculation of arterial-venous differences of oxygen, carbon dioxide and glucose; also the production of carbon dioxide and the consumption of glucose by the brain, per unit of oxygen consumed.

A-V Differences in Oxygen.—Fig. 1 compares the difference in the oxygen content of arterial and internal jugular vein bloods from the right and left sides. Values falling along the diagonal are those bloods in which no difference on the two sides existed. If values are to the left of the diagonal, A-V differences of the left jugular vein are greater, indicating relatively large consumption of oxygen due either to a slower blood flow on this side, or a more rapid consumption of oxygen by the brain tissues. Of the 25 cases there were 5 in which the values fell to the left of the diagonal, one patient was psychotic, in the other 4 the left cerebrum had been damaged. That the damaged side of the brain should have a higher metabolic rate seems improbable, hence the observations suggest a slower blood flow through the injured or atrophic hemisphere. In 6 cases values fell to the right of the diagonal, thus suggesting a slower flow or a higher metabolic rate on the right. All of these patients were psychotic; in 3 the inequality was great, 2 had schizophrenia, 1 had an undiagnosed psychosis. A larger series of observations on psychotic persons would be necessary to determine whether the unequal oxygen utilization from the two sides is a frequent finding.

This procedure of simultaneous jugular puncture may be of diagnostic value in cases of arterial venous fistulas or possibly in assessing the extent of a unilateral brain damage. In "normal" persons without evidence of unilateral cerebral damage, a sample from either internal jugular blood can be used as evidence of the total venous drainage from the brain, at least so far as the oxygen utilization is concerned.

Respiratory Quotients.—Himwich and Nahum(3) demonstrated that the respiratory quotient of the brain of dogs, determined by dividing the carbon dioxide A-V difference by the oxygen A-V difference, is unity. We have found this to be true for unanesthetized persons both epileptic(4) and normal(5). In the present study, values approximated unity in all cases except 3 (cases 2, 15 and 16 in the table). Presumably the low values in these cases was due to decreased breathing by the patient, a procedure which artificially reduces the calculated respiratory quotient of the brain(6). So constant is the ratio of oxygen consumption and carbon dioxide

production by the brain that a deviation from the normal respiratory quotient of more than 3 percent raises serious doubt concerning the technique of securing or of analyzing the blood. Excluding the 3 cases mentioned, the average R.Q. of the right side was 0.995 and of the left 0.994. There was no significant difference between the two sides in any case including the 3 with low R.Q. values. In 10 cases the respiratory quotients were exactly the same, and in only 4 was the difference greater than .01, the greatest difference being .04.

Of particular interest is the fact that when a considerable decrease (or increase) in the oxygen A-V difference of the two sides occurred, this was balanced by an increase (or decrease) in the carbon dioxide A-V difference. In the 10 cases in which the oxygen content of the right and left internal jugular bloods differed by 0.5 volumes percent or more (the average being 1.44 volumes percent) the maximum difference in the two respiratory quotients was only 0.03 (the average being 0.01). These results suggest that any condition, such as a one-sided cerebral lesion which may result in an increased oxygen A-V difference on the affected side does not cause a distortion of the ratio of oxygen consumed by the brain to the carbon dioxide given off.

Ratio of Glucose to Oxygen Consumption.—Because the respiratory quotient of the brain is unity, glucose must be its sole fuel. Theoretically, one volume percent of the oxygen of the blood is required to oxidize 1.34 m.g. of glucose. In these experiments the relationship was obtained by dividing the A-V difference in glucose by the A-V difference in oxygen. In the average healthy person we have found this ratio to be 1.49 when the person breathed room air, and 1.33 when he breathed oxygen(6). The glucose-oxygen ratio is not as exact as the carbon dioxide-oxygen ratio (R.Q.), because of the relative inexactness of glucose determinations. In a case with average A-V differences of oxygen and glucose, a reduction of only one milligram in the measurement of glucose in a venous blood sample would cause a 10 percent reduction in the oxygen-glucose ratio of that side.

The glucose-oxygen ratios for the right and left sides of the 25 cases appear in the last two columns of the table and in Fig. 2. The average glucose-oxygen ratio of the 50 determinations was 1.62, a figure moderately higher than the average value for normals of 1.49. In 25 cases, the average ratio for the right side was 1.63, and for the left side 1.62. Inspection of the table and of Fig. 2 shows that in only a few cases was there significant difference in the glucose-oxygen

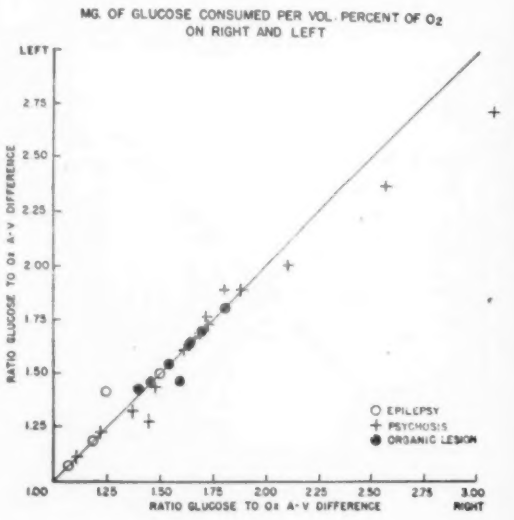

FIG. 2.—Ratios obtained by dividing the glucose A-V difference by the oxygen content A-V difference. The ratio based on the left internal jugular blood is indicated on the ordinate, that based on the right jugular by the abscissa. If the ratios of right and left are the same, the symbol falls on the diagonal. Epileptics appear as circles, psychotics as crosses and subjects with unilateral pathology as solid dots.

ratios for the two sides. In only 3 cases (2, 12 and 17) was the difference between the two sides greater than 10 percent, namely 12 percent in each. There was no consistent correlation, in individual cases, between differences on the two sides of oxygen utilization, or of the carbon dioxide-oxygen, and the glucose-oxygen ratios. This fact suggests that differences in the oxygen content of blood from the two sides were related to differences in blood flow rather than to differences in brain metabolism.

Effect of Overventilation.—Data, up to this point, have dealt with the values obtained under resting conditions. In previous

studies we have shown that the alkalosis induced by overventilation of the lungs produces constriction of cerebral arterioles and a pronounced slowing of cerebral blood flow(7). It seemed important to ascertain whether such a slowing is equal on the two sides, especially in the cases in which one side of the brain has suffered injury or lack of development. Observations were made of 7 subjects. In the table measurements of blood taken during hyperpnea are marked with a star. In every instance at the end of hyperpnea (100 deep breaths during approximately a two minute period) the oxygen saturation of the venous blood had decreased, the result of a slower cerebral blood flow. In the 7 cases the average decrease during hyperpnea in the oxygen saturation, 17.1 percent, was the same on the two sides. In individuals, there was no consistent evidence that alkalosis caused a greater increase or decrease of blood flow on the side of the brain which was pathologic.

Comparison of Samples Which Were Not Simultaneous.—In 14 subjects, samples from the two sides were drawn first in sequence and then simultaneously and at the same time as the arterial blood. In 5 of the 14 cases, the spread between the measurements of oxygen content from the right and left internal jugular veins when blood was drawn simultaneously differed from the spread when blood was drawn successively by less than 0.1 volumes percent. In 6 other cases the discrepancy was between 0.1 and 0.5 volumes percent, and in only 3 cases was it greater than 0.5. In only one case did these two procedures yield results which differed by more than 1.0 volume percent. In this case (number 2 in the table) the low respiratory quotients which were obtained indicate that the patient's breathing was shallow.

If only A-V differences in oxygen content of blood are being considered, successive sampling of blood from the two sides involves little error. However, if the respiration is not constant, the values for carbon dioxide will be variable and if blood is drawn from an artery and from each vein separately the ratios of carbon dioxide to oxygen, and of glucose to oxygen may display gross deviations from their true value. Leaving out the distorted case 2, in the 13 cases in which blood samples from an artery and the two veins were taken simultaneously, the average deviation of the R.Q. from unity in the 26 samples was 0.6 percent. When samples in the same subjects were not taken simultaneously, the average deviation was 5.7 percent, nearly ten times greater.

As for the ratio of oxygen consumption to glucose consumption, the average ratio for the 26 blood samples (13 patients) in which samples were taken simultaneously was 1.66. When blood was drawn consecutively, the deviation from this ratio in the average instance was 18 percent. In 13 of the 26 measurements, the differences between blood which was and was not drawn simultaneously proved inconsequential. In 6 instances the average difference was 15 percent, and in 7 instances the difference amounted to 44 percent.

Data from Psychotic Patients.—Because published data regarding the circulation and metabolism of the brains of persons with psychosis are limited, a note may be made of the findings in the 14 psychotic men and women included in this study, in comparison with 50 young men who were physically and mentally normal(5). The average values of the arterial blood of these patients did not differ significantly from the normal group with respect to its oxygen content, capacity and saturation, or its carbon dioxide content. The glucose was 10 mgms. percent higher in patients (neither group was fasting). As regards internal jugular bloods, the content and the A-V differences of oxygen, carbon dioxide and glucose showed no significant deviation from the normal group. The calculated respiratory quotient was the same but the glucose quotient was somewhat higher, namely, 1.68 on the left and 1.79 on the right as against 1.49 on the left in the normal group.

SUMMARY

Blood was drawn simultaneously from an artery and the two internal jugular veins in 25 subjects.

The oxygen A-V difference was approximately the same on the two sides, except in 4 patients with psychosis, and in 4 epileptics with left-sided cerebral pathology. In the latter the oxygen A-V difference on the af-

fected side was relatively great, suggesting a diminished blood flow.

In all but 3 of the 25 cases the respiratory quotient approached unity, the average in these 22 being .995 on the right side and .994 on the left side. Variations in the A-V differences in oxygen, as between both individuals and the two sides, did not cause a shift in the value of the respiratory quotient. The average ratio of the A-V difference of oxygen (in volumes percent) to the A-V difference of glucose (in milligrams percent) was equal, 1.63 on the right side and 1.62 on the left.

In 7 cases hyperpnea produced the usual increase in the oxygen A-V difference, without consistent differences on the two sides, even in the presence of unilateral brain pathology.

Simultaneous puncture of the jugulars and artery is not necessary if A-V differences in the oxygen content of the blood are being measured, but it is necessary if the carbon dioxide content, the respiratory quotient, or the oxygen-glucose ratios are being measured.

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PRESENILE DEMENTIA (ALZHEIMER'S DISEASE)

Its Pathogenesis and Classification [1]

With Two Case Reports

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The two cases presented in this paper show that presenile dementia is possibly no true clinico-anatomical entity. Anatomically, at least, they illustrate what may well be two different aspects of the process of ageing.

Ever since Alzheimer (1911) first described the clinical and anatomical picture of premature senility of the central nervous system investigators have been fascinated by this phenomenon. This was not only because of the comparative rarity of the condition and its value for the collector of curiosities. Indeed it seemed to open a new vista with regard to the problems of premature ageing in general. However, even in 1930, nearly two decades after Alzheimer's first description, Grünthal was able to muster only 40 cases from the entire literature, and moreover, at the time of Grünthal's review nothing essentially new could be added to Alzheimer's (1911) and Simchowicz' (1911) original description. Nevertheless, Kehrer (1921) as well as Grünthal (1930) felt after surveying the literature and cases of their own experience that the concept and the classification of presenile dementia was as yet too rough and ready, and that a careful analysis of single cases would lead further. It was from this point of view that the following cases were studied.

Case Reports

Case 1.—This man was admitted to the Verdun Protestant Hospital August 26, 1938, at the age of 55. The history had to be obtained from friends and fellow employees because his family refused to have anything to do with him. He also was admitted on the application of a friend. Therefore the history obtained dated back only a few years.

For 8 years before admission he had been working as a night cleaner in a large building of a life insurance firm. For 3 years preceding admission people in his immediate environment had noticed definite abnormal signs. He became extremely generous as far as money and other things were concerned, and some employees took advantage of this. He had unusual outbursts of laughter without apparent reason. Fellow employees found him "funny," and liked to take him out in the evenings and for meals, apparently for their own amusement. He lived away from his family (wife and daughter) at the Y. M. C. A. and would occasionally indicate that his family ostracized him. He would buy various articles—shoes, shirts, etc., even when he did not need them—and leave them at the stores or elsewhere or give them away. For lunch he would eat several bowls of porridge with huge amounts of sugar. In restaurants he would stare at girls for a long time and in an embarrassing way but never, to the knowledge of our informants, make advances to them. At the same time a marked impairment of memory was noticed. This became so severe that, for instance, one midnight friends found him sitting helplessly in the lobby of the Y. M. C. A. because he could not find his room; he was not inebriated. He asked the desk clerk to tell him where the room was. They found his room open, with bird seeds lying around and an empty bird cage. The patient used to chirp like a bird during the night. While all this went on his working capacity as a floor cleaner was still quite good but in the end his work was poor, and he was finally admitted to the hospital after he had been picked up by the police wandering aimlessly around the street, unable to name his own address. According to our informants there was no history of alcoholism.

Findings on Admission.—On *physical examination* he was noted to be a sallow undernourished man with baggy eyes; weight 135 lbs.; otherwise nothing remarkable. Blood pressure was 110/40 and there was a systolic murmur at the apex. He had herniotomy scars bilaterally in the inguinal region. Neurological examination was entirely negative. On admission he had a ++ reaction for sugar in the urine but never any glycosuria after that. His blood sugar was 104 mgm % on one occasion. R.B.C. 4,780,000, Haem. 88%, W.B.C. 9,900, Poly. 60%, Ly. 33%, Mo. 5%, Eo. 1%, Bas. 1%. WR neg. in blood and CSF. The CSF findings were also otherwise entirely negative. On *mental examination* he was noted to be pleasant and cooperative; he mixed well with other patients, as far as his intellectual handicap would allow. He ate and slept well but was somewhat sloppy in his appearance. He was obviously content to be in the hospital. He was quite unable to give his history and

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referred the examiner to a Mr. B, who apparently was some superior in his last position. Mr. B's name was the only name he seemed to remember. However he remembered the examiner's name after a lengthy interview. The only data of his past life he remembered were the following. He was born in Sulton, England, and went to school there. He was married and had a daughter who, he stated, worked as a nurse in a hospital; but he did not remember the name of the hospital. "I have a wife, she lives with Mrs. ——— I have forgotten the name." He did not know when he had come over to Canada. He was badly disoriented in time. He did not know the year or the month, or his own age. (*Q*. How old are you?) *A*. "I have no idea, my memory, my memory, I cannot get it back." (*Q*. What is the name of this place?) *A*. "This is a place for you doctors to fix people, but I do not know, I cannot tell you."

He was unable to name certain objects shown to him—fountain pen, blotter, ruler; but was able to name others—pencil, ink, cigarette, pen. When his performances were faulty, the wrong word he chose was usually of the same "sphere" (Schilder) as the correct word—instead of "razor" he said "scissors" and he called the doctor's white coat a "jacket," a pen "pencil" (though in the last example the relation may have been a phonetic one). When he had to rely entirely on his sense of touch the result was very similar; with eyes closed, he could name and describe a cup but not a bottle or inkwell. When he was unable to name an object and was given some help by using a similar word he frequently succeeded in naming the object; for example, the patient holding a book in his hand but unable to name it, the examiner said "That is not a boot" whereupon he promptly said: "Of course not—it is a book." He was successful also when one suggested words not phonetically but logically connected with the expected response. For instance, he was unable to name simple drawings, such as a rabbit, a dog, a human face; however help such as the following was successful. *Q*. "What is that?" *A*. "I don't know." *Q*. "It's not a horse." *A*. "No, it's a rabbit." *Q*. "What's this? It is not a woman." *A*. "No, it's man's face."

During the attempt to say a series of figures perseveration was quite marked, especially with the numbers above 10. When he attempted to write series of figures he would, instead of 30 31 32, write "3012."

The patient could read most letters but found it difficult to copy them and could not write them at all by dictation. He was quite unable to copy circles, triangles, squares or crosses, but did much better when the figure was named at the time he was given the task: "That is a circle, draw a circle." In forming any letter he invariably began with a vertical line. He also would make three vertical lines, three lines slanting up to the right but was quite unable to draw horizontal lines or lines slanting down to the right. (As far as could be made out his visual fields showed no coarse defect.)

Further Course in Hospital.—For about 3 years his general attitude and behavior and his mental symptoms were about the same as indicated in the admission notes. There was an occasional mild indication of what seemed to be a confabulatory tendency. He would talk about his marvellous feats as a bicyclist. He also showed some emotional instability. He would get unduly furious when somebody swore around the ward, and would even get into a fight about this. At other times he would laugh boisterously about a poor joke, or break into a prolonged uncontrollable spasm of laughter when his feet were examined. He started helping with a little routine work on the ward. However, the most conspicuous signs were his disturbances of memory, speech and similar functions as indicated above. He would climb down from an examining table, put his slippers on and climb immediately back onto the table, not remembering that he had just been examined, or not being able to think what he was supposed to do.

In subsequent notes by various examiners it was mentioned that his memory showed transient improvement, but no substantiating details were given. He did however improve physically and gained 19 pounds within 3 years. After this there followed a marked physical and mental deterioration. During the last year of his life he was incontinent. He wandered aimlessly around the ward, and his speech became an unintelligible muttering. Finally he became bed-ridden, emaciated, and in spite of adequate nursing care in the infirmary he developed large bedsores which gave rise to a blood-borne infection to which he succumbed July 15, 1943.

Post-mortem examination, 24 hours after death. Summary: an old, extremely emaciated male appearing about the stated age of 60. Circumscribed skin erosions over the shoulders, sacral area and hips, the largest one over the right hip about 8 cms. in diameter. It was black. Hypostasis and purulent bronchitis present. The liver (960 gms.) and spleen (86 gms.) were small but showed no gross lesion. There was a mild degree of atheromatosis of the abdominal aorta. The middle lobe of the prostate was considerably enlarged. Pituitary, suprarenal glands and thyroid showed no abnormality grossly or microscopically, except for some post-mortem autolysis of the suprarenal medulla. The thyroid weighed 28 gms., was symmetrical, and contained a few small colloid cysts. Microscopically the epithelium was somewhat flat and the follicles showed a good amount of colloid.

Brain. The calvarium showed no gross lesion. The dura was firmly adherent over the convexity. The brain weighed 1199 gms. The configuration was symmetrical. The meninges were smooth and translucent. The vessels of the circle of Willis showed no gross lesion. There was mild cortical atrophy with moderate widening of the sulci, perhaps a little more marked over the orbital surfaces of the frontal lobes and the anterior parts of the temporal lobes. There was a moderate degree of internal hydrocephalus.

Microscopic Examination.—Blocks were taken from the frontal, temporal, central and occipital area, from the corpus striatum, thalamus, midbrain, cerebellum and medulla oblongata. Paraffin and

frozen sections were used (Nissl, hæmatoxylin—Van Gieson, phosphotungstic acid hæmatoxylin, Laidlaw's connective tissue stain, scharlach R., Spielmeyer, Bielschowsky, von Braunmühl's stain for neurofibrils and senile plaques, gold sublimate stain, Hortega's stain for microglia and Penfield's stain for oligodendroglia).

All nerve cells except for certain areas such as the Purkinje cells of the cerebellar cortex showed a considerable amount of lipofuchsin which showed yellow in Nissl and H. v. G., and dull-pink in scharlach R. Many nerve cells in the cortex especially in the deeper layers, and most markedly in the temporal lobe, showed cell "sclerosis" *i.e.*, shrinkage with spiky contour, darkly staining clumped Nissl substance and a darkly staining shrunken and somewhat homogenous nucleus. There was also a mild and diffuse loss of nerve cells, especially in the deeper layers. There was an increase in astrocytes with occasional glia fibre formation in the deeper layers. The meninges showed a mild fibrosis; so did the intracerebral capillaries. The most characteristic findings however were to be seen in the Bielschowsky and von Braunmühl preparations. In all areas of the cerebral cortex, most markedly in the temporal lobes, a large proportion of nerve cells showed the typical neurofibrillary change of Alzheimer; the intracellular fibrils in these cells were thickened, clumped together or wound up in coils (Fig. 1). At the same time there were typical argentophile senile plaques densely distributed over the entire cortex but apparently of a larger size usually in the deeper layers (Fig. 2, 3).

Summary.—A man develops at about the age of 52 gradually increasing impairment of memory and orientation, emotional instability and personality changes typical of the organic syndrome. At the age of 55 he is admitted to hospital showing all these signs to a marked degree, together with more specific signs of cortical impairment such as a peculiar nominal type of aphasia, and associated paraphasic disturbances, and disturbances of writing, picture recognition and reading. Neoplasm, circulatory disturbance, syphilis and trauma are excluded. After a somewhat fluctuating course with regard to his physical health there is finally severe general deterioration and death at the age of 60. Post-mortem examination reveals Alzheimer's disease.

Case 2.—This woman was admitted to the Verdun Protestant Hospital July 5, 1940, at the age of 48. The history was obtained from her husband, a mechanical engineer, who was somewhat alcoholic. The patient's mother had died of cancer of the breast; her father died at the age of 60, two years after a stroke. Nothing else was known of the family history. The patient was born in Montreal. She had a good record at school and after graduating from high school was a stenographer and held very good positions. For some time she was private secretary to a very prominent person. According to the husband's statement their married life was happy. However they never had sexual relations, the patient having explicitly refused intercourse. Matters pertaining in any way to sex were never discussed, and at the time of her admission the husband was even unable to give information about her menstrual history. He knew of no previous illness.

About 6 years before admission she began to complain of mild frontal headaches. Four years before admission she became somewhat irritable. About 1½ years later she became indecisive in her actions, and fearful. This fear showed as an indefinite anxiety as well as in more definite peculiar forms; for instance, she would be afraid that someone was in the clothes cupboard, or she was afraid to cross the street. At times she was very restless, wandering around aimlessly. As the husband had to work seven months in the year in the northern part of Quebec, and felt that loneliness made her symptoms worse, he took his wife with him, but she did not improve. She devoted much time to reading but her irritability and her peculiar fears became more marked. When she had returned home, and he came back after 2 months he found that she did not control her bladder and bowels and that she had difficulty in expressing herself. Since he had been away during this last phase he could not say whether this change for the worse had come suddenly or gradually.

During the last few weeks before admission she presented a picture of severe deterioration. All her linen and clothes were soiled. She wandered aimlessly around the house, usually dressed only in her night shirt, smoking a good deal and carelessly dropping lighted matches or glowing cigarette butts. She would either gulp her food or refuse eating all together. At times she would indicate that strangers passing in the street were her own people. In the end her expressions were very simple. She would point her finger at anyone entering the house, saying "You—you—you." In this state she was admitted to the hospital.

There was no history of alcoholism. She drank beer occasionally but not excessively. During the last few years she had been smoking a good deal.

Findings on Admission.—Physical examination revealed a short very emaciated woman looking considerably older than the stated age of 48. Except for a bilateral purulent greenish nasal discharge there was no positive finding. Neurological examination was entirely negative. Gynecological examination showed a virginal outlet, and entirely normal findings with a normal-sized uterus. Blood: R.B.C. 4,000,000, W.B.C. 9,000, Poly. 63%, Ly. 37%, C.S.F. clear, colorless, T.P. 0.015 gm.%, Pandy neg., Cells 0, W.R. neg. Gold Curve neg. The urine showed no abnormality.

On *mental examination* her general attitude and behavior were very much as indicated in the

history, although while being continuously kept in bed she seemed much quieter. She ate well though very untidily and slept quite well without sedatives. She was totally incontinent. When nobody approached her she was quiet. When the nurses during routine nursing care did something to her which she did not understand she became quite restive, but was never violent.

In her spontaneous movements and words there was marked stereotypy. Her spontaneous speech consisted of simple verbigerations (logoclonus), such as: "Ke, Ke, Kibbie, Kibbie, Kibbie, you Kibbie, Kibbie, Kibbie, me, me." (*Q.* "How old are you?") *A.* "I don't know—Kibbie, Kibbie, Kibbie." In her speech, writing and directed movements she had a great tendency to perseverate. In replies to specific questions there was a certain tendency to confabulate. For instance she indicated that she had 2 children, both girls. She was unable to name common objects, for example a pen, match, handkerchief, but could indicate their use. However, she was unable to indicate the use of certain other objects such as a key, probably because the task was too "abstract" with regard to her situation. She was able to repeat simple words or numbers but could not repeat complete sentences or continue the alphabet. She was able to read written as well as printed words, the alphabet and figures. She was however apparently quite unable to write sentences, words or figures spontaneously or after dictation, except for "1234" and "Blossom Bertie" (her own names) which she repeated frequently. At one time she said "I am" and then wrote "Blossom Bertie." When given simple tasks such as putting out her tongue, lifting her right hand or foot, or opening or closing one or both eyes she would perform correctly but with a marked tendency to perseveration. She would go on for some time performing one task while another one was requested. Even while writing certain letters such as "B" in "Blossom" she would repeat loops unnecessarily—an obvious manifestation of her tendency to motor perseveration.

The *course in hospital* was a rapid decline. In spite of what seemed to be adequate nourishment she lost weight rapidly and became extremely emaciated. Often she would hold her head with a frowning expression as if she had a headache. Her logoclonic productions became more and more simplified so that she would repeat syllables, such as "you-you-you-you . . . ." or "go-go-go-go . . . ." over a long period. She would scratch herself rhythmically for hours (there was no obvious skin lesion) and therefore she had to have mittens and had to be restrained. By this time it was no longer possible to communicate with her. Only on one occasion, when her abdomen was palpated and she was asked whether there was any pain she said distinctly "Yes," and her examiner had the impression that she understood the question. After a few days of terminal fever she died December 19, 1940.

Post-mortem examination, 5 hours after death. Summary: A short female (135 cms.) looking much older than the stated age of 48, in an extreme state of cachexia. There was cyanosis of the finger tips and there were a few superficial skin erosions over the knees. The lungs showed bronchopneumonia and a few scattered partly caseous partly calcified areas of tuberculosis (up to 2 mm. in diameter) in both upper lobes. The remaining organs showed simple atrophy except for the pituitary and suprarenal glands. This is briefly illustrated by the organ weights: heart 170 gms., liver 781 gms., pancreas 60 gms., spleen 55 gms., kidneys, r. 89 gms., l. 90gms., thyroid 9 gms., pituitary 610 mgms., suprarenal, r. 4 gms., l. 7.5 gms., the ovaries showed involutional fibrosis. There was a very mild degree of atheromatosis of the abdominal aorta. Microscopically the liver and heart showed brown atrophy. In the kidney a few glomeruli were hyalinized, there was an occasional small cluster of round cells. In the spleen there was some increase of periarterial connective tissue, and some hyalinization of trabecles. All other findings except for the lung (s. above) were normal.

Brain.—The skull showed no gross lesion. The dura was moderately adherent over the convexity. The venous sinuses were free. The brain showed generalized symmetrical atrophy and weighed 864 gms. With the leptomeninges dissected off the atrophy was more conspicuous, with narrow convolutions and wide sulci. This change was generalized, perhaps a little more marked in the frontal lobe, especially Broca's area (Fig. 4).

Microscopic Examination.—Blocks were taken from the frontal, central, occipital areas, from the lenticular nucleus, thalamus and hypothalamus, midbrain, medulla oblongata and cerebellum. They were cut frozen or imbedded in celloidin or paraffin. Hæmatoxylin-van Gieson, Nissl, phosphotungstic acid—hæmatoxylin, Laidlaw's connective tissue stain, Bielschowsky, von Braunmühl, Spielmeyer, Hortega's microglia impregnation, gold sublimate impregnation. Penfield's oligodendroglia stain and scharlach R were applied.

The findings were essentially the same in all areas, with differences in degree. There was a general rarefaction of nerve cells in the cortex, especially in the middle layers, with absolute increase of astrocytes, and a mild degree of astrocystic fibre formation. There was a marked increase of lipofuchsin in nerve cells, especially marked in the inferior olive but absent in the Purkinje cells. Some cortical nerve cells showed "sclerosis." There was mild diffuse intracortical demyelination. Occasionally there were a few compound granular corpuscles containing neutral fat around small intracerebral vessels. There was moderate hyalinization and fibrosis of small intracerebral vessels.

Neither Bielschowsky's nor von Braunmühl's stain showed any intracellular nerve-cell changes or plaques anywhere. Modifications of these staining methods were tried, especially in those areas which showed marked gross atrophy but with the same lack of success. It should also especially be noted that these silver stains did not anywhere show the argentophile intracellular structures characteristic of Pick's circumscribed cortical atrophy.

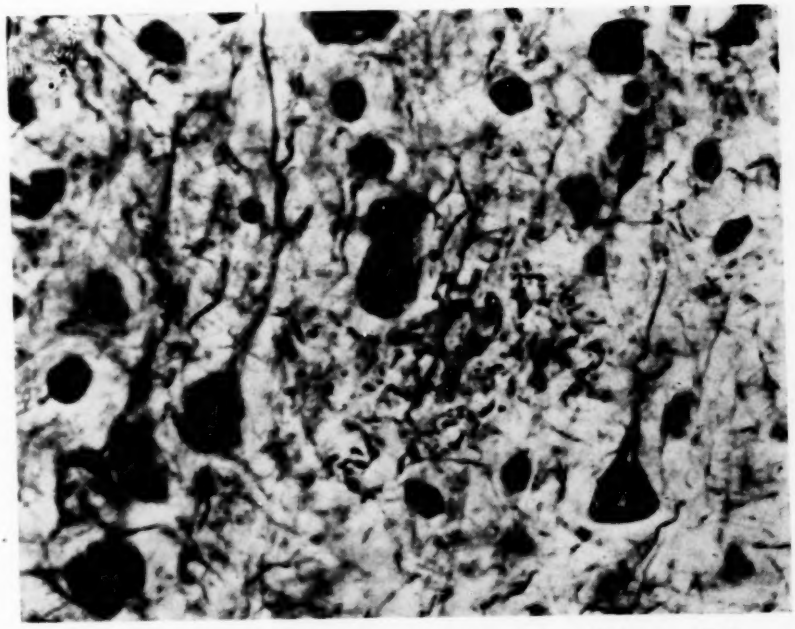

FIG. 1.—*Case 1.* Clumping and coil formation of intracellular neurofibrils (von Braunmühl's stain).

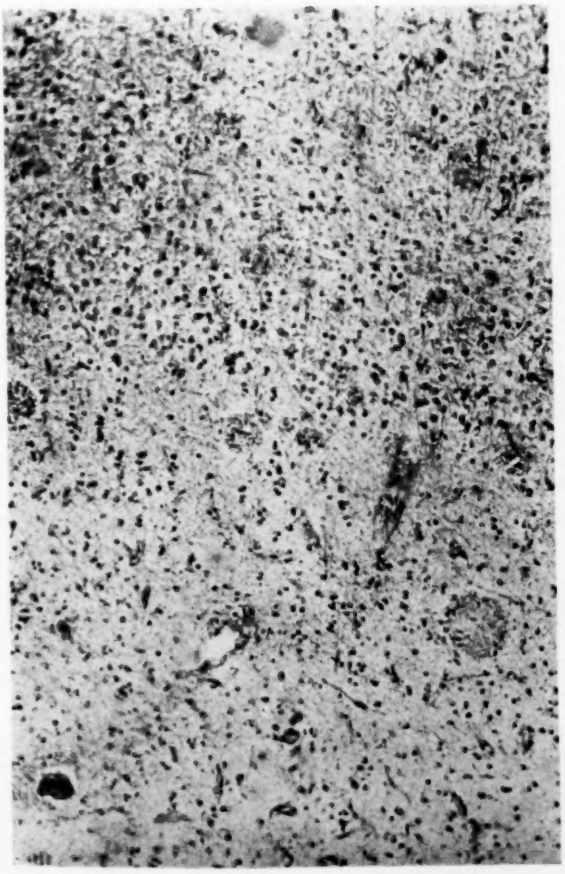

FIG. 2.—*Case 1.* Cortex with numerous argentophile plaques (von Braunmühl's stain).

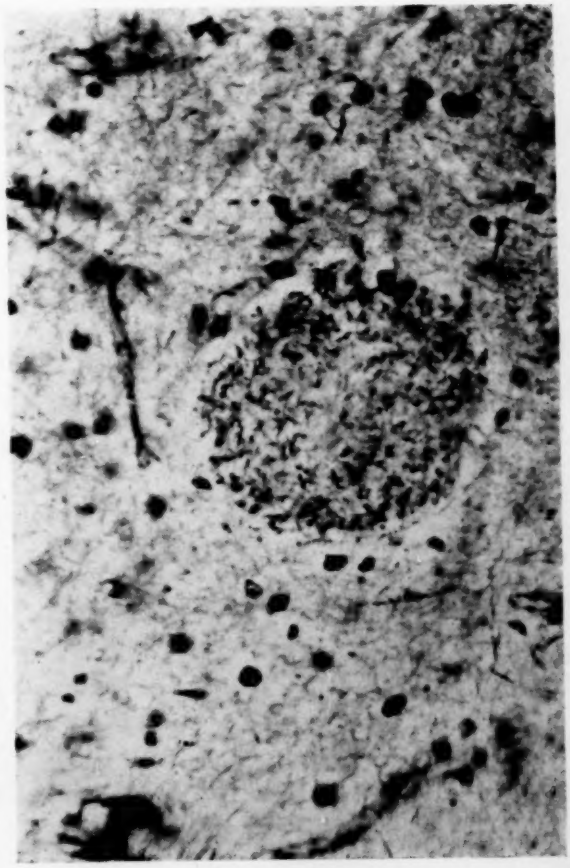

FIG. 3.—*Case 1.* An argentophile plaque in the cortex (von Braunmühl's stain).

FIG. 4.—*Case 2.* The upper two pictures show the comparison of a normal brain with the patient's brain (in the latter the meninges are stripped off).

The lower picture shows the right side aspect of the patient's brain (reproduced at a somewhat larger scale).

Summary.—A woman of 42 shows for several years diffuse anxiety, phobias and general restlessness. This increases until the age of 47 when she shows severe disorders of conduct, intellectual and speech impairment. She is admitted to hospital at the age of 48 with a severe degree of the organic syndrome. There is a rapid physical and mental decline which leads to death within 6 months after hospitalization. Post-mortem examination shows generalized cortical atrophy (brain weight 864 gms.) with all the characteristic features of senility except for Alzeheimer's neurofibrillary changes and senile plaques which were absent. There was also bronchopneumonia, small pulmonary tuberculous lesions, and simple wasting of all organs except for pituitary and suprarenal glands.

Discussion

These are two cases of severe and progressive dementia occurring before the period of old age, in one case during the 5th decade, in the other during the 6th decade of life. Since vascular disease, syphilis, neoplasm and head injury could be excluded both cases had, from the beginning, to be regarded as "idiopathic" cases of dementia. In view of the age group to which they belong this left only the two possibilities either of Pick's circumscribed cortical atrophy or Alzheimer's disease.

It is not the purpose of this paper to go into any detail about the differential diagnosis of these two conditions. It should be pointed out however, that, according to Bonfiglio (1926) in Pick's disease there is an aphasia present with gradual reduction of the word material, resulting finally in a state close to complete mutism, or transcortical sensory aphasia, whereas in Alzheimer's disease there is a diffuse all round deterioration of speech with no particular pattern, with paraphasia, verbigerations and logoclonus. From this point of view the second case corresponds more closely to Alzheimer's disease.

However the two cases differ much more in the course of the disease than with regard to cortical function on examination. This is probably due to the fact that both came to the hospital fairly late in the development when the dementia was well advanced. The difference in their respective courses is the more striking. The first case showed characteristic features of the organic syndrome from the beginning particularly with memory loss and typical changes of the personality. The second case, however, presented for a considerable time quite unspecific symptoms, suggestive much more of a functional disorder or even of a psychoneurotic development. In addition to headaches and irritability, the patient suffered from diffuse anxiety and certain phobias, such as being afraid of crossing the street. Almost any physician seeing her during this stage would have diagnosed a psychoneurosis or the initial stages of a functional psychosis, particularly because of her history of having purposely remained a virgin during marriage. It is noteworthy that previous investigators usually found in cases of Alzheimer's disease affective disturbances, especially anxiety, during the first stage. Thus the differentiation from affective psychoses is at times difficult (Herz, 1927). Again from this point of view our second patient corresponds somewhat more closely to what has been described as a characteristic feature of this condition. It should also be noted that this case followed a rapid downhill course with no fluctuations, whereas the first case responded physically quite well to hospitalization, gaining 20 pounds during the first 3 years in hospital, and during the initial period being better able to care for his immediate bodily needs.

The two cases present an even more striking difference anatomically. The first case presented the classical features of Alzheimer's disease. A great number of nerve cells in all parts of the cortex showed the typical neurofibrillary changes, clumped together, and irregular coil formation (Fig. 1); there were numerous argentophile plaques all over the cortex (Figs. 2 and 3). With all these severe changes the remaining features of senility were comparatively inconspicuous. Grossly the brain showed only moderate atrophy, and its weight was little diminished. The lipoid atrophy of nerve cells and the general gliosis were moderate. Exactly the contrary was true in the second case. There were no neurofibrillary changes

demonstrable and argentophile plaques were absent; but there was a very marked generalized atrophy of the brain with wide sulci, narrow convolutions, and a very conspicuous loss of weight. Microscopically the only conspicuous features were marked lipoid atrophy, and actual loss of nerve cells and a generalized gliosis.

This seems a peculiar contrast. However, it becomes much more comprehensible if we remember the distinction which Lewy (1925) and Spatz (1925) made with regard to the ageing process of the central nervous system. Lewy distinguishes between primary and secondary phenomena of involution; the primary ones comprise the simple parenchymatous atrophy, loss of cells with consecutive glial proliferation, and the increase of brown pigment. The secondary signs of involution are neurofibrillary changes and plaques. Spatz, too, maintains that neurofibrillary changes and plaques are phenomena in themselves, not primarily associated with the biology of ageing. He points out that parenchymatous atrophy with increase of brown pigment, and consecutive proliferation of interstitial tissue characterizes the fundamental process of ageing, common to organs outside the nervous system and to the mammalian species. However, Alzheimer's neurofibrillary changes and plaques occur only in senile human brains, and there they are almost exclusively confined to the cortex, the developmentally most recent structure.

Lewy and Spatz made this distinction on the basis of theoretical considerations. As far as the literature could be surveyed no cases of presenile dementia have been presented as yet which showed so clearly the relative independence of these two phenomena of involution. From the present cases it is quite obvious that in presenile dementia the primary involutional "abiotrophy" may be present to an enormous degree, without the "secondary" signs of involution, and vice versa.

Such distinctions are not only of academic interest. Changes of the intracellular neurofibrils similar to those described by Alzheimer in senile and presenile dementia have been seen in various clinical and experimental conditions; during hibernation (Tello 1904), after starvation and cold (Donaggio 1906), in pellagra (Parhon and Papinian 1905, Valtorta 1908), after extirpation of thyroid and parathyroid (Balli 1906, Rasdolsky 1926), associated with cholera (Michailow 1913), with dysentery (Alexander and Wu 1935) and with uræmia (Lafora 1913, Hechst 1931). All these conditions which present, at first glance, such a variety, have in common disturbances of nutrition, basal metabolic rate and water metabolism. Moreover, it was pointed out that in a number of psychoses of the old age group there seems to be an unknown superimposed factor present which does not belong to the process of ageing proper, and may be the reason why these cases respond to nutritional therapy (Reed and Stern, 1942).

This does not mean that presenile and senile dementia are due to an unknown metabolic or nutritional factor. Malamud and Lowenberg (1929) described the case of a boy with peculiar personality changes and dementia, which took a rather fluctuating course, following scarlet fever at the age of 11; he died at the age of 23 apparently without general somatic signs of premature ageing, and the brain on post-mortem examination showed all the characteristic features of Alzheimer's disease, with neurofibrillary changes and plaques.

The obvious dissociation and independence of the primary and secondary ageing factors as shown in the present two cases demonstrates clearly that we have here something more than mere "abiotrophy"; the experimental and other data quoted from the literature suggest that at least part of the process is due to a superimposed unknown factor which is reversible and may sometimes be accessible to treatment.

Summary and Conclusion

Presenile dementia does not appear to be a well-defined clinico-anatomical entity, and single case studies are helpful in elucidating the problem of pathogenesis and classification.

Two cases of presenile dementia are described. One is that of a man who, at the age of 52, developed the typical organic syndrome, with certain signs of focal cortical impairment such as aphasia, paraphasia and disturbances of reading, writing and picture

recognition. After severe general deterioration he died at the age of 60, and post-mortem examination revealed the typical histological features of Alzheimer's disease.

The second case is that of a woman who at about the age of 42 began to show unspecific symptoms such as diffuse anxiety, definite phobias and general restlessness, suggestive of a psychoneurosis or the beginning of a functional psychosis. After several years she gradually developed severe disorders of conduct, intellectual and speech impairment. She died in a state of extreme organic dementia and physical deterioration at the age of 48. Post-mortem examination showed severe generalized cortical atrophy (brain weight 864 gms.) with the signs of senility except that the characteristic histological features of Alzheimer's disease were entirely absent.

It has been suggested (Lewy 1925, Spatz 1925) that the process of ageing manifests itself in the central nervous system along two different lines. Atrophy, brown pigment, proliferation of interstitial tissue represent the "primary" phenomena of ageing, and are not confined to the central nervous system or to man. However, the combination of neurofibrillary changes and argentophile plaques is a "secondary" phenomenon of ageing which occurs only in man and in the phylogenetically most recent structures of the nervous system.

The two cases here presented demonstrate that the "primary" and "secondary" phenomena of ageing occur independently. The significance of this fact and its clinical and pathological implications are discussed.

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SAINT VINCENT DE PAUL—SAINT LOUISE DE MARILLAC AND THEIR DAUGHTERS

THEIR CARE OF THE INSANE

(France, 1600-1800)

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When the white cornette of a Sister of Charity appears, the illustrious name of Vincent de Paul rises before the mind's eye. It is the name of the great Apostle of Charity whose "heart went out to all who were in distress, and [whose] sympathy was always translated into acts of kindness that were carried out in a liberal and intelligent manner." [1] There was also another whose "name ranks high in the annals of charity—a name most dear to France, and one which cannot be uttered without emotion wherever the Daughters of Charity are known" [2]—Louise de Marillac (Mlle. Le Gras).

Ever since the year 1623, when she found herself free from every tie and obligation, Louise de Marillac engaged herself in assisting Vincent de Paul to establish those "Charities" which eventually brought about the organization of the Daughters of Charity. The first "Charity" in connection with a hospital was that of the Hotel-Dieu in Paris. Hospitals of this era presented a far different spectacle from the hygienic institutions of modern times. Comparatively speaking, very little was known at this time regarding the true state of individuals who reacted in a manner foreign to established custom. At this point it will not be amiss to examine into Saint Vincent's attitude toward the idea then prevalent of diabolical possession. In Leonard [3] we read:

> (A) letter to Abelly clearly indicates his (Saint Vincent's) attitude to the exercise of ecclesiastical authority and the principles according to which, in his mind, spiritual powers should be exercised. They may be briefly summed up: bishops and all others in authority should ever keep before their minds the teaching and example of Jesus Christ. They should teach more by example than by precept, should prefer the employment of mild to severe measures and, when compelled to adopt the latter, should never transgress the bounds of justice and equity. . . . . He was firmly convinced that the possession and exercise of authority, is if not governed by Christian charity, more liable to produce greater corruption of soul than that which results from the practice of more spectacular vices.

A letter to the Duke of Atri [4] written about March 1638, further reveals Saint Vincent's keen perception and sound judgment with regard to the physical and mental condition of the Duke's daughter. He wrote:

> About three or four months ago I was ordered by the diocesan authorities of Paris to visit your daughter, because the Count de Maure had asked for permission to have her exorcised, ... From the very first, she explained her spiritual state to me with judgment and candour, for she has a thoroughly fine mind, incomparably more solid than the usual run of girls, but of a somewhat melancholy cast. My own idea, from the first, was that the trouble was simply due to this melancholic temperament.

Aside from the few who were treated kindly by religious orders during the Middle Ages, "the mentally sick had been considered not only hopeless but bad people who came from evil, carried evil in themselves, and brought evil on others." [5]

History [6] also records that:

> In France it was not until the beginning of the seventeenth century, and after the fervent preach-

[1] Coste, Pierre, The Life and Works of St. Vincent de Paul, Vol. II (London: Burns Oates & Washbourne Ltd., 1937), 492.

[2] Bedford, Henry, The Life of St. Vincent de Paul (New York: D & J Sadlier & Co., 1858), 90.

[3] Leonard, Joseph, Letters of St. Vincent de Paul (London: Burns Oates & Washbourne Ltd., 1937), 175.

[4] Ibid., 181.

[5] Zilboorg, Gregory, A History of Medical Psychology (New York: W. W. Norton & Company, 1941), 269.

[6] Burdett, Henry C., Hospitals and Asylums of the World, Vol. I (London: J & A Churchill, 1891), 81.

ing of Saint Vincent de Paul on charity, that a movement accentuated itself in public opinion in favor of the insane. The hospitals began to open their doors to them; more convents hastened to imitate the few religious orders which had been the first to make this departure.

That Saint Vincent personally engaged in caring for the insane may be proved from the following accounts:[7]

On the 8th of January, 1632, Vincent de Paul took possession of the priory of St. Lazare, where the congregation of the Missions, destined to so great an expansion, remained until the Revolution. . . . . There were at the end of the garden a few little huts, where some poor lunatics were shut up. The sight of them had excited Vincent's tender pity, and had gone a long way in inducing him to accept the foundation.

He at once began to look after them himself, and by dint of kind treatment, gentleness and intelligent charity, succeeded in alleviating their hard lot, even in effecting the cure of some amongst them. He became so much attached to the work that in the course of a lawsuit, occasioned by the handing over of St. Lazare to the missionaries, he frankly confessed to a trusted friend that when he was praying at the time of judgment being given, he began to examine himself in order to see whether, in the event of the case being lost, he should not regret that house too much. He discovered, he said, that there was only one thing for which he had a great affection, and should leave with difficulty: "The poor lunatics who were in the little garden-huts."

From another source[8] we are told:

Nor did he limit his care to those whom he found already in the house; he rejected none that were brought to him, but found great consolation, in the humbling offices which such a charge involved.

When in 1655 an appeal was made by the Committee of the Grand Bureau des Pauvres in behalf of the insane, we can easily understand why Saint Vincent

did not hesitate for long; the thought of the lunatics confined there helped to shorten the time he usually took before arriving at a decision. His joy was accompanied by a certain pride, a noble and a supernatural pride, at the idea that no community of women had hitherto devoted themselves to the relief of poor lunatics, and that our Lord had allowed Himself to be regarded as mad "to sanctify this state as well as all others" having "willed to be regarded as a scandal to the Jews and a folly to the Gentiles." He recommended his Daughters to rejoice with him and to be proud that they had such a noble vocation, which indeed was shared by his priests, for ever since he had taken possession of the Priory of Saint-Lazare, the Congregation of the Mission had an asylum for lunatics in the Mother-House.[9]

And so, she who had always supported and encouraged Saint Vincent, and whose remarkable intellect and profound spiritual depth he had fully appreciated

Having devoted herself in turn to succor every corporal infirmity, nothing remained to Mlle. Le Gras (Louise de Marillac), but to take charge of the unfortunate lunatics in the hospital of the "Petites Maisons."

Perhaps of all the good works taken up by the Company not excepting that of nursing the galley-slaves, the care of lunatics was the most trying to human nature. And yet we know that such was the power of Vincent de Paul of inspiring his Daughters with zeal for souls and that of seeking Jesus Christ in all His members—however sinful or afflicted—that the charge of the lunatics was assumed by the Sisters of Charity with the same fervor that they had shown in all the others which they had previously undertaken.

Truly no mission could exceed in charity that which the Sisters of Charity had now taken up at the word of their holy foundress and her director, for the mad—and specially the violent ones—had as much to endure in France as in other countries in those far-off days. It was then customary to imprison those whose mania made them a risk to public safety, the harmless ones being relegated to convents or other refuges, or allowed to wander at will dependent upon the precarious help of their neighbors.[10]

Relative to the nature of the treatment received by the patients at the "Petites Maisons," Burdett[11] claims:

It is not a little to the credit of Madame Le Gras (Louise de Marillac), however, that the "Petites Maisons" is said to have been a notable exception amongst all continental institutions, inasmuch as it was always famed for the kind and considerate treatment which the inmates received from their attendants. . . . . She had been much impressed with the enormous advantages which had resulted to the sick, owing to the nurses being supplied by the Order of St. Vincent de Paul, and being all specially trained for the work under Madame Le Gras' direction.

The year 1660 saw the termination of the earthly career of both Vincent de Paul and Louise de Marillac. Their modest and obscure beginnings, however, were destined to bear great fruit. That the lessons im-

[7] De Broglie, Prince Emmanuel, Saint Vincent de Paul (London: Duckworth & Co., 1906), 106.

[8] Bedford, Henry, op. cit., 118.

[9] Coste, Pierre, op. cit., Vol. 11, 493.

[10] Lovat, Alice Mary, Life of the Venerable Louise de Marillac (New York: Longmans, Green & Co., 1916), 355.

[11] Burdett, Henry C., op. cit., 623.

parted by one so well instructed in the school of Vincent de Paul, were cherished by those who delighted to call her "our Mother" is without question. The "Petites Maisons" would develop into the establishment at Charenton;[12] Acts of Parliament would change the location of the insane to general hospitals where "a ward had to be reserved in them for lunatics";[13] Revolutions would cause her Daughters to temporarily lay aside their Holy Habit;[14] but God watched over the "little Company" and their spirit expressed in their motto "Charitas Christi Urget Nos" would enable them to surmount all obstacles.

In 1801, over one hundred years after the death of their holy Founders, the Minister of the Interior, M. Chaptal, expressed the desire of having Sister Antoinette Deleau, Mother General of the Daughters of Charity and eleventh successor of Saint Louise de Marillac, present him with an account of the actual state of the Company. Monsieur Chaptal said:[15]

> I am tired . . . . of the innumerable complaints that reach me daily regarding the deplorable state of the hospices, and I wish to re-establish the Company of the Daughters of Charity.

Monsieur Chaptal gave the Sisters a house in the Rue du Vieux-Colombier, and legal recognition was granted the whole Order by the following decree:[16]

> The Minister of the Interior, believing that the laws of October 14, 1790, and August 18, 1792, in suppressing corporations, had preserved the power of exercising charity to all charitable institutions, and that they were only disorganized by a breach of these laws;
>
> Believing that the services rendered to the sick can only be properly administered by those whose vocation it is, and who do it in a spirit of love;
>
> Believing that among all the hospitals of the Republic, those are in all ways best attended to, which have preserved the noble spirit of their predecessors, whose only object was to practice a boundless love and charity;
>
> Believing that there no longer exist in this institution any but those who are growing old, so that there is a fear of this Order, which is a glory to the country, becoming extinct;
>
> Believing finally, that the cares and the virtues necessary in the service of the poor, should be taught by lessons of daily practice and inspired by example,* it is decreed;
>
> 1. Citizeness Deleau, formerly Superior of the Sisters of Charity, is authorized to educate girls for the care of hospitals.
>
> 2. For this purpose the Orphanage in the Rue du Vieux-Colombier is granted her.
>
> 3. She will unite herself to those persons whom she considers as likely to ensure the success of the institution, and she will select pupils whom she considers suited to the work.
>
> 4. All the pupils are required to submit to the rules and discipline of the house.
>
> 5. Government will grant a pension of 300 francs to those who are known to be in positive destitution.
>
> 6. The necessary funds for defraying the expenses of the institution will come from the general hospital expenditure, but they must not exceed 12,000 francs.
>
> (Signed) CHAPTAL.

This expression of official approbation was no guarantee of a millennium of peace and prosperity. That the tree of the Company might anchor its roots more firmly and spread its protecting branches over a larger area of suffering humanity, it was soon to undergo another tempest at the hands of a tyrannical emperor who would have all bow under his authority.

A more thorough discussion of this episode would extend beyond the confines of this paper, so we shall be content with an account of the immediate success of the above decree which may be gleaned from the following:[17]

> It is noteworthy that, from the date when the Sisters received legal recognition as nurses, the justice and necessity of providing them with superannuation allowances, when broken down by sickness, or rendered unfit for work by old age, was recognized and acted upon. . . . . We have stated . . . . that Sisterhoods, on the whole, have not been successful in their treatment of the insane, seeing that their asylums are in the hands of Sisters mechanical restraint is resorted to to a much greater extent than elsewhere. Still, the Sisters of St. Vincent de Paul have set an excellent example, and may be regarded as a bright exception, because, so far as France is concerned, having regard to the history of Charenton, their nursing of the insane proved so excellent as to be altogether remarkable in the earlier centuries when they commenced to work.

Information regarding the work of the Daughters of Charity among the insane dur-

[12] Ibid., loc. cit.

[13] Ibid., 82.

[14] Livre d'Or des Filles de la Charite, Vol. 1 (Paris: Maison-Mere, 140 Rue du Bac), 122 ff.

[15] Ibid., 124.

[16] Stanley, Mary, Hospitals and Sisterhoods (London: John Murray, 1854), 99.

* Supplied from Livre d'Or, op. cit., 125.

[17] Burdett, Henry C., op. cit., 624.

ing the early days of the Company, is, unfortunately, limited. Literature available to the writer does not outline the methods taught by Saint Louise for treating these patients, nor the medicinal remedies prescribed by attending physicians. However, from the preceding accounts it is safe to conclude that only those methods and remedies were permitted and employed that were in keeping with the ideals and ideas of one at whose canonization the following testimony could be rendered:[18]

> I remember when the Servant of God (Vincent de Paul) sent us to work among the poor maniacs of the Hospital, which up to that time had been rather badly managed, he gave us such an exalted idea of the grace God bestowed on us by giving us the office that we all felt inflamed with a desire to devote ourselves to it, notwithstanding the pains and trials which we should have to endure.

[18] Lovat, Alice Mary, op. cit., 355.

MARIHUANA, AN INTOXICANT

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Marihuana or hashish (*Cannabis indica*) is an intoxicant which is derived from the hemp plant. It grows profusely in various parts of the world and is extremely common in India where it can be found growing wild in any field. Indians, particularly the coolie class, smoke it under the names of *ganga* and *bahn*. The dried leaves can be bought in any bazaar or from many peddlers, as well as gathered with almost no effort in the fields. The drug may be taken orally or smoked. The concentration of the crude resins in the oral forms is much greater and the effect is said to be more marked if the drug is taken in this manner than if the dried leaf is smoked. The experience here reported has been limited to those smoking the plant.

Large numbers of American soldiers stationed in India and Burma have had an opportunity to obtain marihuana since it is impossible to control its source. More than 150 patients have been seen in this hospital or in the out-patient clinic who have used the drug. The ratio of white to colored is 1 to 20. Some of these individuals have been smoking marihuana for many years, but the largest group began after coming to this theatre. Nearly all who smoked "reefers" in the states report that the marihuana obtained here is much stronger and much more effective. Thus an opportunity has been afforded to study the effects which this intoxicant produces both on the novice and on the habitual user. Diametrically opposed opinions have often been expressed concerning the harmful effects of this drug and its ability to produce addiction.

A statistical study has not been made but general conclusions based on the observation of these patients are presented.

The patients studied in this hospital who are known to smoke marihuana fall into two categories. The first are the occasional users who try it in an effort to relieve the boredom of their existence, particularly if stationed in one of the isolated jungle outposts, or who use it in an effort to reduce the tension and other neurotic complaints which have developed, or have become intensified, as a result of overseas duty. The second are the habitual users, those who have major personality defects, the immature, emotionally unstable individuals who have never found satisfactory expression for their instinctual life. A wide variety of personality defects, the melancholic, the mentally deficient, the early schizophrenic, the psychopath, may all find release in this drug, but the psychopaths form the great bulk of its users. Under this latter heading are included the aggressive, the paranoid, the schizoid, the emotionally unstable, the sexual pervert and the inadequate individuals who find the demands of reality beyond their capacity.

The first group is relatively unimportant. These soldiers indulge their taste only sporadically and rarely does it result in any antisocial behavior which would endanger themselves or others. They merely take it for the temporary euphoria and amnesia which it produces. The other group is of greater importance. The criminal fringe of society is largely constituted from this type of individual who may become dangerous when marihuana has impaired his moral and intellectual judgment.

The effects of marihuana smoking fall under two headings, the physiologic and psychologic. The physiologic symptoms are: palpitation, nausea and vomiting, vertigo with ataxia, headache and tremor. In a few cases an intense and irresistible desire to sleep accompanies its use, the individual has to sleep until the effects of the drug wear off. In an occasional case a state approaching vaso-vagal syncope develops. The individual becomes light headed, loses consciousness and if examined at this time his pulse will be slow and at times irregular, the blood pressure falls and the extremities are cold and clammy. The pupils are variable, the deep reflexes vary from physiologic to hyperactive with clonus. Consciousness is regained gradually over a period of 10-15 minutes. The patient is unusually weak and

complains of intense headache. The palpitation in some cases produces intense anxiety together with fear of dying which is sufficient to prevent their further use of the drug. The other unpleasant symptoms—headache, nausea and vomiting—likewise often act as a deterrent. These disagreeable somatic symptoms are either absent or so outweighed by the pleasant psychic effects in other individuals that they continue to use the drug.

The psychic effects are quite varied and, at least in part, depend on the type of the personality of the individual who uses the drug. The principal psychologic effects are the euphoria, the sense of well being and the distortion of time perception. There is impairment of judgment both intellectual and moral. Boisterousness and impulsive behavior are common. The tension under which the individual has been laboring is reduced since the demands of reality are diminished. The schizoid individual who constantly feels shy and inferior either becomes less aware of his inadequacy, and thereby feels more capable of meeting the demands made upon him, or withdraws more into his world of fantasy. The former effect gives him a false sense of well being; he feels more ambitious and more successful. He therefore has a distorted view of his ability and performance, which when checked objectively is found to be far from satisfactory. This tendency of the drug to allow fantasy free play and to remove normal inhibitions may have serious results in the paranoid and aggressive types. Often because of their defective judgment such individuals will commit criminal acts, which under ordinary circumstances they would be less likely to do. A great many stockade prisoners who have been examined to determine their sanity are habitual users of marihuana. When questioned about a criminal act they report that just prior to the incident they were smoking marihuana; their thinking then became blurred and they acted without full knowledge of what they did. Even under narcoanalysis with sodium pentothal these amnesic periods cannot be recovered. In the Orient this tendency of the drug to result in criminal activities is well recognized. In the Malayan language, the term "run amuck" signifies this type of behavior in a user of the drug. While there is no comparable term in *Urdu*, it is well recognized that the coolies, who for the most part are the chief users of marihuana in India, often become violent and aggressive under its influence.

In addition to the major criminal acts which occur as a result of marihuana intoxication there are many misdemeanors which follow its use. Thus the emotionally unstable individual becomes more impulsive and irritable. Despite his superficial boisterousness and apparent good humor, he may become a bully and frequently gets into a fight with his associates. When he is at work his skill and judgment often are impaired by this intoxicant to the point where he damages equipment and endangers his own life and the lives of others. The sexual pervert who ordinarily cannot muster up enough courage to commit his act may do so under the influence of the drug. In addition there are the episodes of "running amuck" which occasionally occur. A typical example: a negro soldier had been smoking marihuana in his basha. He suddenly got up from his bed where he had been day dreaming, seized his rifle and began firing it through the roof and the walls of the basha with total disregard for the safety of others. His associates quickly disarmed him. When seen by his medical officer a few minutes later he was dazed and confused, he appeared to be totally unaware of his surroundings and could give no account of this recent behavior. He was given a sedative. When he awoke a few hours later he complained of severe headache, had no memory of the recent episode but was quite disturbed because he recognized the seriousness of his act.

While it is true that those psychopathic individuals who commonly smoke marihuana often exhibit abnormal behavior without it, the tendency for asocial or psychotic behavior is greatly intensified by its use. The relatively weak imperative to conform to reality is lessened by this drug and the inhibitions which ordinarily hold these persons in check, although imperfectly, are discarded. Marihuana like alcohol does not necessarily produce abnormal behavior. The danger lies in the fact that immature and psychopathic persons use it to deaden their

perception of reality and when under its effect their inhibitions and judgment are impaired with consequent increase in abnormal behavior.

There has been considerable controversy as to whether the drug produces addiction. It certainly does not do so in the same sense that opium does because habitual users do not develop tolerance to the drug, nor do they have withdrawal symptoms when it is discontinued. Many of the patients seen here have used marihuana steadily over periods as long as 10 years, and yet rarely will they smoke it more than three to six times a day. Moreover when they are placed in a closed ward where all access to the drug is denied, they show no withdrawal symptoms. They resent being deprived of the drug and if they are at all honest, do not deny that they are going to use it again as soon as the opportunity presents itself. It is interesting to note that most of these individuals when they know they are coming overseas try to get a sufficient supply of "reefers" to last them during their entire voyage. In most instances they have underestimated the length of the trip and the supply runs out during the latter part of the voyage. However, they generally suffer no unusual symptoms as a result of this.

It has been said that individuals who use *Cannabis indica* in large doses over long periods of time develop a typical psychotic reaction, which is accompanied by complete intellectual and physical deterioration.[1] Only one case has been seen here which approached this condition. This individual was a negro soldier who was brought to the hospital from the stockade where he had been taken shortly after his troop train arrived in this area. He came over as a casual replacement so that little was known about his past history. He had been a constant problem enroute, completely undisciplined and subject to violent fits of anger. While in the hospital the patient was violent and aggressive; there appeared to be almost complete intellectual, moral and emotional deterioration. His behavior varied from periods of apathy and indifference during which he was accessible but appeared to be capable of only the most elementary mental processes, to periods of acute delirium when he would attempt to injure himself and others. He said that he had been smoking "reefers" since he was a child. Whether this represented the end stage of prolonged use of the drug or not cannot be definitely stated without a complete history.

Since there are no withdrawal symptoms, management of these patients is quite different from that of narcotic addicts. The main problem has to do with the underlying psychopathology. In the case of the neurotic, superficial psychotherapy which attempts at developing insight into the causes of his tension and anxiety, is frequently of considerable help. However, in the case of deep seated personality maladjustments, cure is uncertain. Any improvement which might be hoped for would only occur after prolonged periods of retraining which are beyond the scope of an overseas hospital. In view of the generally poor prognosis as far as such patients are concerned even under optimum treatment and environmental conditions, it is open to serious question whether such problems should be handled by the army psychiatrists who have so many acute problems which are the direct results of the stresses of the service.

SUMMARY

1. Marihuana does not produce addiction in the sense that opium and its derivatives do. Tolerance is not established and withdrawal symptoms do not occur. It is an intoxicant which temporarily produces euphoria, distortion of time perception and impairment of intellectual and moral judgment.

2. Its habitual users are largely emotionally immature individuals who are constantly frustrated in their attempts to find adequate instinctual expression. The fundamental problem is the abnormal personality.

3. Marihuana smoking creates an important problem since it often acts as the determining factor, turning the balance in the direction of asocial behavior rather than permitting the poorly integrated social conscience of such an individual to remain in control.

[1] Bouquet, J. Marihuana intoxication. J. A. M. A., **124**: 1010 (April 1, 1944).

NEUROPSYCHIATRIC PROBLEMS AT AN ALEUTIAN POST

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Introduction

In the abundant psychiatric literature dealing with the present war little has been written about soldiers in isolated areas who have broken down under stresses of war other than actual combat. This summary of 325 neuropsychiatric casualties, studied over a period of two years in the Aleutian Islands, deals with soldiers who for the most part had not been subjected to battle.

The psychoneuroses dealt with in this paper cannot, in the usual sense of the term, be called "psychoneuroses of war." Yet some of the case histories of these psychoneurotic soldiers are not unlike cases reported in the literature as "battle neurosis" and "combat fatigue"(1). It is generally agreed that the mere act of serving in the armed forces during war time, even without combat as a precipitating factor, frequently causes smoldering neurotic patterns to flare up in certain men(2). Thus the importance of external precipitating causes looms large, even in an area free from combat.

Of the psychoneurotic patients in this series, 80% gave a history of clear-cut symptoms appearing at some time before entering the service. What part the war has played in reactivating these neurotic patterns is not easily determined. External factors are varied and have been repeatedly described in the literature. Actual combat is so tangible that no one can doubt its importance as a precipitating factor(3). One might go further and affirm that until a man is subjected to actual combat with the enemy his ability to withstand the exigencies of war has not been given the supreme test. But this would be stretching the point; it would lose sight of many other external factors, less tangible but still effective.

Etiology

In this isolated, bleak, desolate land of snow, rain, fog and wind, the primary struggle of the troops who pioneered the occupation of the Aleutians was against the vicious elements of a forbidding climate. In the midst of this struggle there was the constant threat of an invading enemy. Only gradually was the general feeling of insecurity supplanted by one of security. What then were some of the more elusive external factors of war which affected morale adversely and precipitated some of these neuropsychiatric disorders?

Climate.—The Aleutian climate, in a peculiar way, entered the picture. It would be begging the question to assert that physical bouts with bad weather were not constant threats to a man's endurance. But there was something paradoxical about the climate. In a sense it was vicious, but then again it was beneficial. Men hated the climate, yet they remained surprisingly well physically. The weather became the subject of endless discussions. It would seem that much of the men's hostility was projected against the Aleutian climate. They could see nothing good in it, a low morbidity rate notwithstanding. Men were sure their health would be undermined because of supposed vitamin deficiencies. They thought they were not getting enough calcium in the water, but they were. This sort of complaining was a good outlet for the emotionally stable men, and even the neurotic apparently derived some benefit.

Monotony.—It was continually necessary to impress upon many of these soldiers that the job they were doing was just as important to the total war effort as any other job. When the glamour of war was played up by the press, radio and motion pictures, certain of these men could see no such glamour in the efforts they were making. They came to feel that they were being left out of the focus of attention. It was difficult to convince them that duty well performed carried its own reward. Infantry soldiers, for instance, resented working as laborers. They felt they were losing their identity as infantrymen. They preferred to storm a beachhead

with all its attendant dangers. Dreaming of something better, a considerable number of men could see only the bad in what they had, and considered only the good in what they desired. Certain men seemed to overlook the fact that in the Aleutians they were free from incapacitating malaria and dysentery. These men who had not seen combat were emotionally blind to what fighting men elsewhere were obliged to endure. When contemplating other distant fronts they were prone to disregard the miseries of desert and jungle warfare. Despite sound reasoning to the contrary, many of these soldiers felt that they would gladly exchange the deadly monotony of isolation for an opportunity to experience the excitement of battle. Any kind of excitement was what they craved.

Extended Foreign Duty and Rotation.—As months of foreign duty multiplied and extended into years, officers and men grew tired and weary. They impatiently waited for a rotation and furlough plan to materialize. Men grasped at any rumour that made it appear they would soon be going back to the States. The indefinite term of their isolation from their families and civilization preyed on their minds. Various degrees of inefficiency showed up in men who previously had been efficient workers. Men who considered themselves strong persons registered alarm in being seized with streaks of depression and ennui. Some men who prided themselves on being sound, wondered if indeed it were essential to engage in combat to find their breaking point.

After Kiska was occupied by our troops the feeling of being wasted and forgotten was particularly prevalent. To many men it seemed that the war was over. It was evident that these men had lost sight of the overall picture. Still, reminding them of their shortsightedness did not alter their one desire—to get back to the States for awhile and let someone else carry on in their place. They wanted to find out what the conditions were at home and little else would satisfy them.

As prospects of rotation brightened, emotional disturbances decreased; hopes were renewed and the incidence of neuropsychiatric disorders dropped.

Fear.—Fear played a prominent rôle in many of these soldiers who broke down. At first it was fear of the unknown. Where they were going there were no cities; none of the things they were used to; not any of "the old familiar places." They knew the enemy was already on part of the strange land where they were headed. Men wondered if after once they landed and secured a foothold they would be able to stand their ground against possible attacks from the enemy. Some men feared becoming helpless, feared capture, imprisonment and torture. They wondered how they would escape if they were overwhelmed. They feared the icy waters which surrounded them and which some time might trap them. Frequently these fears were suppressed because they hinted of cowardice; yet it was evident that fear was an important factor even though often it was disguised.

Intrinsic Factors.—Men with well-integrated personalities withstood these vicissitudes. They demonstrated that they possessed the emotional stability and maturity prerequisite for a good soldier. They accepted regimentation as something necessary. They subjugated their personal wishes to the will and domination of the war machine. There were certain soldiers, however—and these were in the minority—who did not possess the strength to stand up under the buffeting which their personalities received.

Since all these soldiers were subjected to essentially the same external factors, intrinsic factors had an important rôle to play in the causation of neuropsychiatric disorders. These factors embraced heredity and constitution, but more significant, it was felt, were the early environmental factors and their conditioning influences. Broken homes, as a result of incompatibilities, divorce or death of parents, were frequently responsible for perpetuating early feelings of insecurity, fears, doubts and frustrations. The effect of severe prohibitions exacted by strict parents was reflected in a fear of superiors in the Army and in resentment of authority in general. Passive, inadequate, dependent persons not infrequently gave a history of a poor work record throughout their lives, and a history of long years of chronic somatic

complaints dependent on varying degrees of physical and emotional trauma in early life.

Incidence

The types of neuropsychiatric disorder encountered are shown in Table I. Psychoneuroses constituted more than half of the cases. (Table II.) Psychopathic personalities, 13.8%, were next in order. Dementia precox made up 12.3% of the entire number. (Table III.) Only 3 cases of manic-depressive psychosis were observed.

Of the 325 neuropsychiatric cases, 33.5% were evacuated. For the 18 month period from 1 January 1943 to 30 June 1944, of the total evacuations (including medical and surgical cases) those for neuropsychiatric reasons amounted to 35.4%. During the same period only 13% of the total evacuations were for psychoneurosis. When viewed in relation to total number of troops, the neuropsychiatric evacuation rate was surprisingly low. There were no deaths from suicide.

TABLE I

Neuropsychiatric Cases

	No.	%
Diagnosis:		
Psychoneurosis	171	52.7
Constitutional psychopathic state	45	13.8
Dementia precox	40	12.3
Manic-depressive psychosis	3	0.9
Unclassified psychosis	10	3.0
Mental deficiency	11	3.3
Epilepsy	4	1.2
Miscellaneous	41	12.6
Situational reaction	17	
Simple adult maladjustment	3	
Enuresis	3	
Combined sclerosis of spinal cord	1	
Syncope	1	
Homosexuality (questionable)	1	
Schizoid personality	3	
Organic brain disease (questionable)	1	
Sequelae cerebrospinal meningitis	1	
Post-traumatic cerebral syndrome	1	
Malingering	1	
Language difficulty	1	
No evident neuropsychiatric disorder	7	
Total	325	
Disposition:		
Duty	216	66.46
Evacuated	109	33.54

TABLE II

Psychoneuroses

	No.	% of psychoneuroses
Percentage of neuropsychiatric cases		52.7
Types:		
Anxiety state	50	29.2
Conversion hysteria	17	9.7
Anxiety hysteria	2	1.2
Reactive depression	3	1.8
Post-traumatic neurosis	14	8.2
Hypochondriasis	16	9.4
Obsessive-compulsive state	6	3.5
Neurasthenia	1	0.6
Mixed type	62	36.2
Total	171	
Hospital patients	116	67.8
Outpatients	55	32.2
History of initial appearance of symptoms:		
Before entering service	137	80.0
After entering service	34	20.0
Disposition:		
Duty	128	74.9
Evacuated	43	25.1

TABLE III

Dementia Precox

	No.	% of dementia precox
Percentage of neuropsychiatric cases		12.3
Types:		
Simple	15	37.5
Catatonic	12	30.0
Hebephrenic	5	12.5
Paranoid	6	15.0
Unqualified	2	5.0
Total	40	
History of initial appearance of symptoms:		
Before entering service	5	12.5
After entering service	35	87.5
Disposition:		
Evacuated	40	100

The incidence of disorders among commissioned officers is shown in Table IV. Thirteen cases of psychoneurosis were encountered. Six of these were severe enough

to require evacuation. One officer developed symptoms sufficiently bizarre and acute to warrant a diagnosis of unclassified psychosis, and was evacuated. Four officers showed mild situational reactions.

Reaction Types

Psychoneuroses.—Anxiety was the most prevalent symptom among the psychoneurotic reactions. Conversion hysteria occurring without anxiety coloring was seen in 9.7% of the psychoneurotic cases. Only 6 obsessive-compulsive states in relatively pure form were encountered. Other sub-types are tabulated in Table II. Mixed types of psychoneurosis embraced combinations of anxiety and depression, of anxiety and somatic complaints, of anxiety and obsessive doubting,

TABLE IV

Neuropsychiatric Disorders in Commissioned Officers

Diagnosis:	No.	Duty	Evacuated
Psychoneurosis	13	7	6
Situational reaction	4	4	0
Unclassified psychosis	1	0	1
Total	18	11	7

of anxiety and conversion symptoms. In fact only rarely in the mixed types was anxiety missing.

Most of the psychoneurotic reactions were reminiscent of experience in civilian practice. The patterned fabrics were essentially peace time weaves, even though in some instances the original dyes were altered by the war.

Case 1.—A 29-year-old soldier, unmarried, had repeated hospitalizations from July 1942 to November 1943 because of functional gastric distress. His "stomach trouble" began in 1938, three years before he was inducted into the Army. "After we got through with the work I got so weak just walking from the barn to the house I passed out a couple of times." His devoted mother nursed him through these "spells," preparing him poached eggs and milk-toast. "That's all I ate for two months."

During his school days he was kept home frequently to help his father with the farm work. He quit school at age 16 after finishing the sixth grade. He remained on the farm until 1940 when he secured a job as a tractor mechanic. "I could always lay off when I didn't feel well—just take it easy for awhile."

This patient was tall and thin, with dyspepsia written all over his countenance. He was meek and quiet, accepting his affliction in the spirit of a martyr. With each hospitalization he was always willing to do his best when returned to duty. His usual attitude was: "Well, I know I won't get along, but I'll try. If I can't do the job I have now I'll never be able to get along in any other kind."

This man was finally transferred from the artillery to a service unit. In his new job as a mechanic his military performance improved slightly, but he still required periodic interviews in the clinic to avert further hospitalizations.

Comment.—This passive, inadequate soldier characteristically followed the psychoneurotic pattern. The Army was unable to alter his emotional dependency. In civilian life this was satisfied by a doting mother. The warmth of a hospital bed came as close as anything else the Army could provide toward gratifying his needs. Emotional maturity had never been achieved.

When the working capacity of such hypochondriacal soldiers becomes paralyzed as it was in this patient, their military value becomes doubtful. As with this patient, it frequently happened that much time was lost by treating such disorders as medical problems before finally the neuropsychiatrist had opportunity to evaluate the psychosomatic nature of the complaints. It was found that efforts to rehabilitate such cases were costly, the results disappointing.

Case 2.—An artillery soldier, age 29, divorced, was admitted to hospital in January, 1943, because of marked tremor of hands, tenseness, nightmares, palpitation of the heart and headaches. The intensity of his symptoms subsided considerably within 24 hours, but he continued to be jumpy and tense throughout his hospital stay.

At the age of 11 patient was kicked by a horse and rendered unconscious for 4 hours. In 1933, while in the CCC's, he was blown up by dynamite, sustaining a fractured clavicle when struck by a portion of tree stump. He was not rendered unconscious, but was terribly frightened by the experience. He attributed all his later "nervousness" to this dynamite explosion. After that he was afraid to do any more dynamiting. The sight of his buddy who was at the same time badly injured in the face affected patient more than anything else. The thoughts that troubled him at that time were: "the way he looked and the way he screamed." While in the hospital in 1933 patient attempted to take his life by slashing his wrist. Two years later he made a similar attempt.

This soldier was inducted into the Army in March 1941. He stated that at the induction station he was held over for 2 days because of "nervousness." From September until December

1941 he was hospitalized in the States because of nervousness, bad dreams, tenseness, headaches and stomachache. Later, he had 2 hospitalizations for a total of 5 weeks.

In hospital overseas patient complained of disturbing "crash" dreams. He dreamed of airplanes flying into him, of falling from high places, and of being struck by objects. He said he could not fire a rifle because he was too shaky and nervous. The least bit of tension upset him. He complained that guard duty, outpost duty and gun drill always caused him to tremble. He was continually afraid he would do something wrong and get into trouble. When he felt the nervousness coming on he preferred to go off by himself. On the range, when it would come time for gun practice he would become so tremulous he could not handle the powder nor operate the gun.

This soldier was married at the age of 21, two years after his accident while in the CCC's. His marriage proved a failure because of his inability to hold a steady job and make a living wage.

As to his early life, he said his father was cruel and brutal. He feared his father who was in the habit of beating the livestock. Soldier and his brothers were forced to work hard from an early age. His mother was kind but acquiescent to her husband's dominant rule. In school patient was timid and backward. He finished the 10th grade at age 17, quitting school when his father became ill. With reluctance this soldier finally divulged certain significant events in his early youth. He hesitated to talk about his father, professing a love for his parent; but he finally told how his father used to thrash him for not plowing his rows straight and for not cutting his corners properly. At the age of 12 a mule stepped on his foot and he cried with pain. His father ordered him to stop crying, but he could not. Then his father beat him unmercifully. Patient said, greatly disturbed by the memory, "They had to come from the house and carry me in." Then, at the age of 14 patient witnessed his two uncles in a fight as a result of an argument over an automobile. The one uncle knifed the other to death. In recounting these experiences soldier became markedly disturbed and trembled hysterically.

This patient was evacuated to the States, 4 months after he arrived overseas.

Comment.—This case showed many features commonly seen in the war neuroses precipitated under combat conditions. But here remote intrinsic factors appeared to be far more important than any external factors of war, though the trauma occurring 10 years previously was, no doubt, a vital precipitating agent.

CASE 3.—A 21-year-old infantry soldier first came to the attention of the hospital staff in May 1942 when a diagnosis of exhaustion was made. This was attributed to over-exertion from laying telephone wire to a distant outpost. After a week in the hospital he was returned to duty. His next admission was in June 1943. He had experienced a sensation like an electric shock. He became dizzy and frightened. This attack had occurred during a ten minute break on a dry-firing problem. "I didn't know what I was doing for awhile," was the way he later described his reactions at the time. He felt choked up and became short of breath. His throat became dry and his lips numb. He began to tremble and thought he was having a chill. Following these attacks he developed the fear he might die in one of them. He had never had any serious illnesses, operations or accidents, but he did say that his mother told him that when he was a baby "I got sick one time and was pretty near dying, and the doctor saved me." Patient had never had any convulsive seizures or fainting attacks.

On admission to hospital he was apprehensive, panted frequently and gasped for breath. At times during interview he cried and tears rolled down his face. He stated that when these attacks came on he would get out of bed and walk around the area; or he would go to the dispensary for care. His regimental surgeon reported looking after him on several occasions late at night when patient would come to the dispensary gasping for breath, crying and fearing that he would smother to death. He said he had been having "terrible nightmares." Other soldiers had told him that he walked in his sleep. Patient asserted that at times his whole body would become numb, his chest would hurt, he would lose power in his hands and then he would black out. A few nights before coming into the hospital he attended the theater, but became too disturbed during the battle scenes in the movie and had to leave.

This patient improved and was returned to duty. Back in his company he managed to get along satisfactorily, being rotated with his organization several months later.

Comment.—In this case external etiological factors appeared to have more to do with precipitating the acute anxiety state than any discoverable intrinsic factors. It is obvious what combat would have done to a man of this sort. The question arises as to whether it would have been wiser to evacuate him from his overseas post than to risk his breaking down perhaps next time on the battle field.

Dementia Precox.—Of the 40 cases falling in this category, all were full blown examples of schizophrenia. Schizoid personalities and vague schizophrenic-like reactions were not included in this group. Simple and catatonic types made up two-thirds of the schizophrenic cases. (Table III.) Paranoid and hebephrenic reactions were relatively uncommon. Before the settling down phase occurred

following hospitalization, many cases were not easy to differentiate into sub-types. This fluctuating, nebulous quality of symptoms frequently continued for several days or weeks.

The catatonic cases as a rule were precipitated suddenly. In most of the other cases, particularly those of simple dementia precox, just when the personality changes first appeared was difficult to determine. At times symptoms were so insidious in development that many months elapsed before fellow soldiers and closely associated officers realized there was anything wrong with these men. Occasionally officers were aware of a man's strange behavior but failed to see its true significance. When these men entered the hospital for observation, one gained the impression that symptoms in some instances had been present for years. Yet with no social service histories available to corroborate this impression, the duration of these personality changes was impossible to estimate.

With the paranoid group, suspicion was directed against enlisted men in 5 of the 6 cases. One patient thought his service record was being altered by the men who worked in the personnel office. Another patient (see Case 4) had long-standing delusions about the mail. One patient was hostile toward his 1st sergeant, claiming that his superior had gone around saying he was "nuts." Another patient loaded his rifle and went outside "to get the fellows" who he was sure were calling him names. Another patient turned violently against the hospital attendants. Only one patient in the paranoid group projected his hostility on an officer. This patient had the idea a gang led by a lieutenant was after him and was poisoning the food.

CASE 4.—A 26-year-old, married, artillery soldier was admitted to the hospital in March 1943 for treatment of a dental infection. While patient was in the hospital his commanding officer consulted us in regard to the soldier's behavior in the battery, stating that he thought there was something the matter with the man inasmuch as he had not written any letters home during the year he had been overseas.

Questioning this man revealed that he was suspicious, antagonistic and hostile. It was learned that for a long time he had been having delusions, because of which he had refrained from writing to anyone in the States, even to his wife. He went on to say that when he first came into the Army everyone made fun of him. The men in the dispensary, he said, called him a gold-brick, and when he went to the hospital the men in his battery talked about him. He discovered, he said, that the men in his outfit were discussing things that came out of his letters. "They laughed and thought it was smart. They'd just get close enough so that you could hear them. So I went up to the captain we had then and asked him if he knew what the trouble was. He didn't give me any answer. When I left the tent there was a whole bunch of them around listening. They had lots of comments to make and everything else." In private and with great secrecy he displayed letters from his father which, he said, had been tampered with. During the time patient was in the hospital awaiting evacuation he developed the idea that the other patients in the ward talked about him. He insisted to the last that someone was at the bottom of a plot against him. He displayed no worry or concern over his wife's having not heard from him.

Comment.—This case shows how it is possible occasionally for a mentally deranged soldier to go along in the Army day after day, month after month—in this case for nearly 2 years—before being detected as such. Only when his mother began to wonder why no one in the family had received any mail from him in over a year was the true nature of the man's mental illness realized.

Psychopathic Personalities.—Most of the men in this group gave a history of juvenile delinquency, repeated civilian arrests, and poor work performance. Delinquency in childhood was seen in petty thefts, truancy and rebellion to parental control. Arrests had occurred for stealing, burglary, forgery, malicious mischief and alcoholism, to name a few offenses. In performance of civilian work, these men were unreliable, and they lacked the ability to stay with a job very long. Frequently they lost their jobs because of their irresponsibility, or they voluntarily changed jobs because of dissatisfaction.

In the Army these men continued to get into trouble because of their arrogant disregard for military authority. They reacted in a spirit of aggressive rebellion. They created endless disciplinary problems. For accepted moral standards they had no feeling. These antisocial attitudes were either acted out or came forth in verbal diatribes. To go AWOL was an impracticable method of rebellion in this area. Lacking this means of defiance, some of these men deliberately committed acts of insubordination in order to be court-martialed. But ordinarily their

offenses were not deliberately conceived. Unable to control their impulsiveness, and lacking good judgment, these selfish individuals simply acted according to the ingrained manner in which they had been accustomed to act since childhood. Some men prided themselves in being clever enough to "get away with murder."

The early environmental background of these men was conducive to the development of a psychopathic personality. Many had been left to shift for themselves at an early age. Their homes had been broken up by divorce or death of parents. Frequently there was a history of alcoholism in one of the parents. Early in their lives these men were imbued with the idea that the world in general was against them. If this was the case, they reasoned, then they would defy the world. This warped attitude was revealed any number of times.

It has been suggested by some observers that under certain circumstances men of this caliber might be capable of performing exceptionally useful service. As shock troops they might be of value because of their unrestrained hostility. But it would seem that their unreliability would nullify any sporadic usefulness. So far as the majority of the psychopathic personalities in this series were concerned, they failed miserably in performance of military duties under such conditions as required patience and group cooperation (4).

Being able "to slug it out," as it were, with someone in authority occasionally helped some of these maladjusted psychopaths. In interviews with the psychiatrist they could give vent to their hostilities without fear of reprimand. Once their antagonism was voiced they were more receptive to advice on how to get along with their fellow-men. Appeal on a patriotic basis would at times move these men to give better work performance. It was surprising what the simple attempt at understanding these soldiers did in counteracting some of the hostile feelings they had against the world at large. This did not require lengthy psychotherapy; often one interview sufficed. It is important that these men feel that an attempt is being made to understand their problems. Improper approach only makes matters worse. In dealing with the more severe cases of psychopathic personality, the psychiatrist finds he has little to offer in way of therapy.

Miscellaneous Disorders.—Weariness, disappointment, vague resentments and worry often found expression in a variety of somatic symptoms. Gastrointestinal disturbances were prevalent, along with self-diagnosed cases of "rheumatism." These situational responses subsided in many instances when adequate diagnostic study assured the soldier that no organic lesion existed to account for his symptoms. He was then handled as a psychiatric problem and not dismissed as a negative medical or surgical case. Effort was made to remove situational factors which appeared responsible for precipitating the symptoms.

CASE 5.—A 29-year-old private in a signal service company of the Air Forces was admitted to the hospital because of depression and an impulse to take his life. This change of personality had come on suddenly following receipt of a telegram from home telling him that his father had had a stroke. This soldier remarked that he had grown irritable and quarrelsome with his best friends. He voiced indignation at being kept away from home so long, having at the time been separated from his family for over 3 years.

This man had never married. He quit high school in his sophomore year in 1936 in order to enlist. After 2 years of voluntary service in Panama he left the Army, re-enlisting in 1940. Between enlistments, he attempted to complete his high school course by attending part-time school, but did not apply himself sufficiently well to make any headway. He was closely attached to his parents, seven brothers and one sister. He stated his home life had always been pleasant.

In the hospital he manifested more motor than mental retardation. He expressed resentment at what he considered unfairness when certain men were returning home after remaining less time overseas than he had been obliged to spend. He was soft-spoken, polite and courteous during the therapeutic interviews. Summarizing the way he felt, he said, "When you get to the point of getting up in the morning and wondering what's the use of washing your hands or teeth—well, it's just the same as losing the foundation that your house is built on."

Further news that his father's physical condition was not apt to prove fatal, together with adequate rest, daily interviews and assurance that he would soon be returned to the States caused this soldier's depressive symptoms to disappear.

TREATMENT

Prevention of neuropsychiatric disturbances by means of mental hygiene is the

best approach to this problem. The ideal time for prevention to be instituted is obviously during the early formative years of a prospective soldier's life. But even after entrance into the armed forces much can be accomplished through mental hygiene. This has been demonstrated by neuropsychiatrists functioning in replacement training centers (5, 6, 7). The importance of this approach is reflected in the policy of the War Department to provide for the giving of lectures on personal adjustment to officers and enlisted men.

But despite the best efforts to screen out neuropsychiatric misfits, and despite industrious efforts to teach men how to keep themselves well adjusted, certain soldiers will sooner or later require therapeutic care as psychiatric casualties.

If a soldier knows that someone is trying to understand him he is already on the way to being helped. The more frequently this understanding is practiced by a company or battery commander, the less frequently the psychiatrist will be needed. Medical officers should guard against being the cause of inducing a chain of neurotic symptoms in their patients by injudiciously calling attention to insignificant physical findings. Such iatrogenic neuroses have been seen to develop many times when a physician, either through ignorance or inadvertence, acted unwisely in his therapeutic efforts.

Line officers can easily become co-therapists with the psychiatrist. Much can be accomplished by this cooperation. Frequently, reassignment of a soldier will remedy what appears to be at first an insoluble problem.

A wise therapeutic handling of neuropsychiatric disorders comes mainly through experience. Men who have a bona fide functional illness can be treated justly only when their symptoms are properly evaluated. For medical officers to label all complaining soldiers "gold-bricks" is a mark of inadequate medical training, inexperience or indifference. On the other hand, it is a mistake to allow the malingerer and the constitutional psychopath to propagate their tricks and malice among the ranks of well-meaning and honest soldiers.

The disposition of patients in this series was made with due regard for authoritative directives governing policies to be followed. All psychotic patients were evacuated. Severe psychoneurotics were likewise sent back to the States. Many of the less severe psychoneurotic patients were returned to duty. As often as was possible, these patients were cared for in the clinic rather than in the hospital. It was possible to handle approximately 1/3 of the psychoneurotics in that manner. It was kept in mind that a man with a moderately severe psychoneurosis on a relatively inactive front could often be salvaged and returned to duty, whereas the same man under stress of combat conditions would have to be considered in a different light. Adhering to this policy it was possible to keep roughly 75% of these patients on a duty status.

Handling the problem of the psychopathic personalities meant, first of all, educating line officers as to how these personality disorders differed from the psychoses and psychoneuroses. This in turn meant showing the line officers why it was not within the province of the medical department to evacuate these men as medical patients. Unless these men were too flagrantly hostile and antagonistic, it was felt they could be retained in service without seriously disrupting the general morale. Occasionally it became necessary to recommend that they be separated from the service because of their undesirable habits and traits of character.

The employment of intensive psychotherapy depended on the nature of the case, the tactical situation and the amount of time which the psychiatrist, frequently working without assistance, could give to individual cases. It was found that the shorter the period of hospitalization, the less was the tendency to strengthen the neurotic symptoms. The sooner functional complaints were recognized as such and treated accordingly, the better was the response obtained. Few occasions arose for employing narcosynthesis.

Again, it is desired to stress the importance of mental hygiene. Prevention is the best solution of this world-wide problem. It is reasonable to believe that this solution can be obtained through better education and indoctrination. These measures will lead to the acquiring of more cohesive personality

traits, acquisitions that will make a man not only a better soldier now, but a better citizen when peace arrives.

Summary

1. A series of 325 neuropsychiatric disorders studied at an Aleutian post is presented and discussed from the standpoint of etiology, incidence, reaction types and treatment.

2. Though combat was not a factor in precipitating or reactivating neurotic syndromes in this particular locality, other less tangible external factors played a decisive rôle in the production of neuropsychiatric disability.

3. Of the psychoneurotic patients, 80% gave a history of clear-cut symptoms before entering the service.

4. Psychoneuroses made up over 50% of the cases.

5. Some of the psychoneurotic reactions in these men who were not in combat were similar to cases reported in the literature as "battle neurosis" and "combat fatigue."

6. Psychoneurosis, dementia precox and miscellaneous disorders are illustrated by case histories. Certain problems in dealing with these disorders are discussed.

7. The general problem of disposition and treatment is presented, emphasis being laid on mental hygiene. Roughly 75% of the psychoneurotic soldiers were kept on duty status. One-third of the total neuropsychiatric cases were evacuated.

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A STATISTICAL STUDY OF ONE HUNDRED NEUROPSYCHIATRIC CASUALTIES FROM THE NORMANDY CAMPAIGN

(With Control Material)

MAJOR WILLIAM NEEDLES, M.C.

I. Purpose, Material and Method

One of the most challenging questions that confronts anyone dealing with large numbers of neuropsychiatric combat casualties is why certain men can stand up under the stress and strain of battle while others cannot. Undoubtedly many factors play a rôle, but the assessment of the significance of each is difficult, and, in the absence of definitive knowledge, impressions, hunches and *ex cathedra* statements abound. The problem is not merely of academic interest. It is of great practical importance to a nation at war, since much waste in manpower, training, shipping as well as adverse effects on the remaining personnel would be avoided if early spotting and elimination of potential breakdowns were possible. It is not possible to alter external factors and to lessen the impact of total war with all its threats and horrors; but, if some individuals break down in the face of similar circumstances more easily than others it would seem imperative to know the reason why and to evolve accordingly a psychologic screen which, while it eliminates the unfit, does not also eliminate the good soldier.

Some who deal with neuropsychiatric combat casualties have been impressed by the large number with poor backgrounds; the past history was such that the men seemed likely candidates for a crack-up under any unusual strain. Others on the contrary have considered external factors the more important, with the most robust individual breaking down under the intolerable load of modern warfare. The truth appears to lie somewhere between these extreme views and one might construct a psychologic spectrum with, at one end, the psychically predisposed to breakdown and, at the other, the men with good mental stamina who succumb only to overwhelming forces. At any rate speculation and conjecture should yield when a sufficient number of facts is accumulated.

The advent of D-day brought us a considerable number of combat neuroses, evacuated from other hospitals further forward in the echelon, to this neuropsychiatric centre. It was thought that this material might offer clues regarding the cause of breakdown, and 100 such consecutive cases were utilized for the study. Almost without exception they had been in combat less than a month, many of them for only a few days. A questionnaire, composed of 86 questions, was submitted to them. The answerers remained anonymous. The first 15 questions dealt with the familial background and early environmental factors, the next 15 with possible neurotic traits. Previous treatment for nervousness either in civilian life or in the Army was inquired into. Further questions were devoted to the school record, both scholastic and disciplinary, the work record and the military record. Other points covered were conflicts with the law, the type of sports and hobbies indulged in, the sexual adjustment, religious attitudes, personality traits, psychosomatic symptoms, attitude toward society and toward the Army, previous experience in combat, belief in immortality and in a "lucky star," mobilization of anger during combat, squeamishness about killing even in self-defense and the presence or absence of self-reproaches for falling out of battle.

To lend validity to whatever conclusions might be reached it appeared indispensable to have as a control group men who had stood up well to the ordeals of battle. Otherwise one might find, for example, a certain incidence of poor family background or neuroticism or antisocial behavior in the neurosis group; but, unless there were a significant disparity in the incidence of these characteristics in the neurosis group and in the control group, it would not mean much. The study of a control group might furthermore throw some light on the justice of the contention sometimes made that certain screening methods are of dubious value since

soldiers with a neurotic personality structure have been known to distinguish themselves in battle. If this proved to be so in exceptional instances, it would mean one thing; if it occurred frequently, another. The ideal place for the study of a control group of successful soldiers would have been, of course, at the combat area with soldiers who were still carrying on after considerable exposure to battle. This for obvious reasons was not feasible. It was therefore decided to utilize for the purpose, soldiers who had been evacuated to a neighboring general hospital with a medical or surgical condition sustained during combat. One hundred such cases were selected who had been in combat at least a month and some as long as two months without any neuropsychiatric complications. They had been through the same campaign at the same time as the neurosis group and had therefore been exposed to similar hazards, terrain, weapons, etc.; which was all to the good for control purposes. Waiting for maturer veterans of the battlefield who had withstood a longer period of combat than one or two months might have provided an even choicer group of individuals. However, here again the exigencies of war had to be deferred to. Waiting longer meant risking the possibility that combat cases would cease to be returned to our hospital area or that one might, oneself, be shifted to another theatre of operations, so fast were things moving on the continent.

A few words about the questionnaire method of study would appear in order before examining the data elicited. The method has definite advantages and equally definite disadvantages. It depends to a greater extent than the personal interview type of exploration on the intelligence of the subject as well as his powers of self-appraisal and his diligence in answering questions. In some instances a disappointingly large number of questions remained unanswered or the answers were inconsistent and confusing. In the personal interview such shortcomings are reduced by prodding the apathetic subject or assisting the less endowed. Then, some topics had to be rather briefly treated in the questionnaire for fear of prolonging it indefinitely and thus producing fatigue and inattention. Personal interviews furthermore would better have served to gain insight into some of the forces that operate in building up the personality, in comparison to which the method of the questionnaire must appear naive, especially to the "depth" psychologist. On the other hand the questionnaire method allows one to deal with large numbers of men in a minimum of time, which is no mean consideration in the Army, where so many other duties claim one's attention. The element of anonymity in the questionnaire method seems to me of great value also in that it eliminates evasive answers to intimate questions and dressed up answers designed to facilitate a way out of the service. The doctor-patient relationship of civilian life may not always exist in the Army; the soldier cannot ignore the fact that his physician is also an Army officer and that whatever he tells him can be used against him. The personal interview, therefore, is less conducive to obtaining a complete picture of the individual in the Army than it is in civilian life.

II. Findings

(a) *Age.*—In the neurosis group 54 of the 100 subjects were 25 years old or younger, 27 were 26 to 30 years old, 11 from 31 to 35 and 8 from 36 to 40 years of age. In the control group 62 were 25 years old or younger, 28 ranged from 26 to 30 years, 8 were between 31 and 35 years and 2 were between 36 and 40 years. There was slight preponderance of older men in the neurosis group.

(b) *Family Background and Early Environmental Factors.*—These were classified as "bad" only if strikingly adverse influences were uncovered, such as criminality or drunkenness or serious mental disease in the family or constant bickering between parents indicative of a turbulent household or an unhappy childhood spent in an orphanage. The fact that one or both parents may have been somewhat nervous or even that the home was broken up by separation or divorce was not considered in itself sufficient basis for calling the background "bad." Much weight was attached to whether the subject described his childhood as a happy one or not. Using such criteria, the family background and early environment were considered good or indifferent in 71 cases, bad

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in 28, with inadequate data for appraisal in one case, in the neurosis group; in the control group the same factors were good or indifferent in 87 cases and bad in 13. The incidence of a poor familial background was about twice as great in the neurosis group.

Coming to specific items, in the neurosis group one parent was regarded as emotionally unstable in 48 instances, both parents as such in 29 cases, with no adequate data in 4 cases. In the control group the respective figures were 38, 10 and 12. Both parents in the control group were emotionally well balanced in 40 cases (45.5%) as compared with 19 cases (20%) in the neurosis group.

There was no essential difference in the incidence of homes broken up, either by separation or divorce; 14 instances in the neurosis group, 12 in the control group.

The number who considered their childhood for one reason or another a miserable one was, in the neurosis group, 21 out of 92 (22.8%) and, in the control group, 11 out of 99 (11.1%).

In the neurosis group 54 felt a closer attachment to the mother, 8 to the father, 22 showed no preference and 16 were noncommittal. In the control group the respective figures were 60, 13, 9 and 18. The concept of the Œdipus complex appeared substantiated in the stalwart as well as the frailer type of soldier.

(c) *Neurotic Traits.*—The 14 neurotic traits listed included such items as seclusiveness in childhood, sickliness when it appeared psychogenically determined, prolonged enuresis, nail-biting, somnambulism, nightmares, temper tantrums, phobias, marked reaction to the sight of blood, avoidance of hunting or fishing for fear of hurting animals, stuttering, fainting, shyness, undue sensitivity to criticism. The neurosis group had an average of 5.91 neurotic traits and the control group an average of 3.67.

A graph plotted to show the distribution of cases according to the number of neurotic traits each had indicated that while there were patients with but few neurotic traits in the neurosis group and patients with a large number of neurotic traits in the control group, nevertheless the number of patients with a few neurotic traits was greater in the control group and the number of patients with many neurotic traits was greater in the neurosis group. (Chart 1.)

(d) *Psychosomatic Symptoms.*—Under this heading were included such disturbances as coldness and sweating of the extremities, vague gastric disturbances, insomnia, tremor of the hands, precordial pain, vertigo, frequent headaches; 7 in all. It was presumed

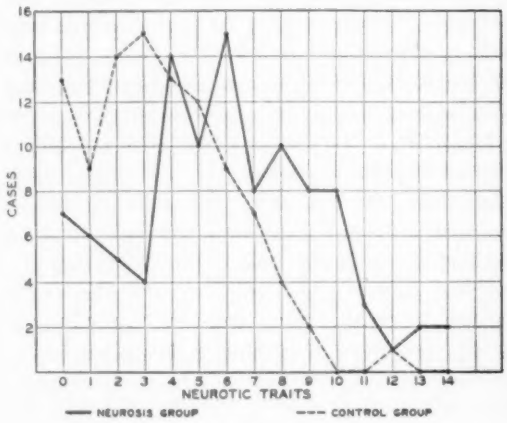

CHART 1.

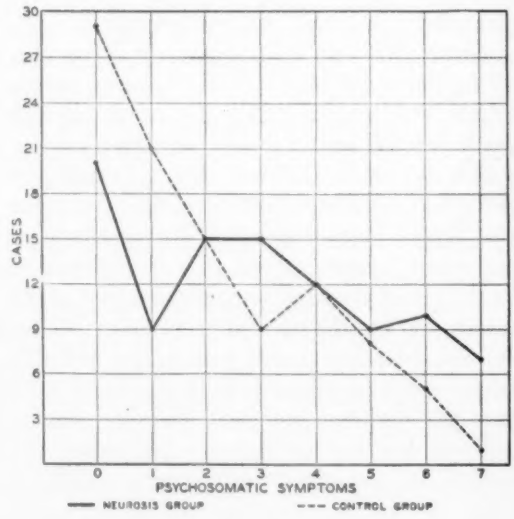

CHART 2.

that no adequate organic basis for these symptoms existed. The neurosis group showed an average of 2.94, the control group 2.03 of these symptoms. (Chart 2.)

(e) *Treatment for Nervousness in Civilian and/or Army Life.*—This yielded some very interesting information. In the neurosis group, of the 93 subjects who answered the

question, 27 (29%) had been treated for nervousness prior to induction into the Army; 21 (23.1%) out of 91 who answered the question had been treated for nervousness while in the Army; 10 had been treated for nervousness in both phases of their life; 38 had been treated for nervousness either in the Army or in civilian life. In the control group, of the 97 who answered, 7 (7.2%) had been treated for nervousness in civilian life; 1, out of 93 who answered, had been treated for nervousness in the Army (and he was one of the 7 who had treatment in civilian life).

If one used as a basis for exclusion from combat the history of treatment for some nervous condition either in civilian life or in the Army 38 would thus have been eliminated from the neurosis group, 7 from the control group. If one added to this criterion another, the presence of 8 or more psychoneurotic traits out of the possible 14, an additional 14 cases would have been excluded from the neurosis group and 5 from the control group. Whether it is more economical or wasteful to eliminate 52 potential neuropsychiatric casualties at the expense of excluding 12 men who will prove themselves good soldiers is clearly a debatable point. The disrupting influence of the neuropsychiatric casualty on the rest of the personnel about him is but one of several factors which must be considered in reaching a decision.

(f) *Personality Traits.*—This was in certain respects the least satisfactory part of the survey, since here there was a discouragingly high proportion of questions left unanswered. The subjects appeared either unable or reluctant to appraise themselves. The information sought was intended to show whether the individual considered himself nervous or calm, prone to worry or carefree, dependent or self-reliant, docile or aggressive, sociable or seclusive, meticulous or slipshod.

In the neurosis group 70.6% considered themselves nervous, in the control group 31.1%. In the neurosis group 54.5% considered themselves worriers, in the control group 26.2%. In the neurosis group 20.3% considered themselves dependent, in the control group 2.3%. In the neurosis group 35.1% were seclusive, in the control group 16.5% This would indicate a tendency on the part of the potential neuropsychiatric casualty to be more nervous, given to worry, dependent and seclusive than his more robust counterpart.

There was no striking disparity between the two groups as regards meticulousness; 63.5% in the neurosis group and 52.5% in the control group.

One point of some interest was the fact that practically the same number, 49 out of 81, in the control group and 49 out of 76, in the neurosis group, described themselves as "docile." This was surprising since other data obtained seemed to suggest that the members of the neurosis group were less amenable to discipline and more prone to roistering than those of the control group. Perhaps the tendency of an individual, who is sure of his strength and his ability to take care of himself, to be less aggressive is in part the explanation.

(g) *Educational Level.*—The educational level of the two groups was essentially the same: 32 in the neurosis group in public school as compared with 37 in the control group; 63 of the neurosis group in high school and 58 of the control group; 4 of the neurosis group in college and 5 in the control group.

(h) *Social Adjustment.*—There was no perceptible difference in the groups regarding conformity to discipline in school; 10 out of 98 in the neurosis group and 9 out of 98 in the control group had been behavior problems at this phase of their existence.

The work record similarly did not disclose significant disparities; 92 out of 97 in the neurosis group and 93 out of 96 in the control group had a good or passable work record.

The army record of each individual was considered good or indifferent rather than bad unless there had been frequent transfers because of inaptitude or violations of discipline, or loss of ratings for similar reasons, or courts-martial, frequent AWOLs and company punishments. The army record was found by these standards good or indifferent in 91 out of 97 cases in the neurosis group and in 90 out of 100 in the control group; again, no appreciable difference.

In other respects, however, the members of the control group showed more of a ten-

dency to uncurbed, antisocial behavior; 9 out of 99 cases (9.1%) in the neurosis group gave a history of conflicts with the law while in the control group 17 out of 96 (17.7%) gave such a history. As to more than average indulgence in alcohol 10 out of 99 in the neurosis group confessed to such, 18 out of 99 in the control group.

(i) *Sports and Hobbies.*—The attempt to find out whether the control group would manifest a greater tendency to indulge in rough-and-tumble, competitive sports rather than the tamer pastimes of more timorous individuals led to no findings that would justify such a conclusion.

(j) *Sexual Adjustment.*—This was assessed as inhibited rather than free if there had been continence outside of the marital sphere or if intercourse had been complicated by disturbances of libido or potency. In the neurosis group 16 out of 95 cases could be characterized as inhibited; in the control group 9 out of 96. Certain explanations will suggest themselves to the analytically oriented psychiatrist but, in the absence of more comprehensive material, it seems wiser to skirt the realm of conjecture.

In the neurosis group 42 of the subjects had been married, in the control group 35; 6 divorces or separations had occurred in the neurosis group, 3 in the control. The slight preponderance of married men in the neurosis group apparently goes hand in hand with the slight preponderance of older men in this group. At any rate while marriage with its increased responsibility toward dependents, possible worry about conjugal fidelity or the health of wife and child, division of allegiance between family and state has been thought by some a contributory factor in breakdown, there was insufficient evidence for such a conclusion in this study.

(k) *Religious Attitude, Belief in Immortality, Belief in a "Lucky Star."*—All other things being equal, the man who is sustained by faith in a protecting power should be able to withstand adversity more easily. Where such faith is lacking a considerable degree of intellectualization is necessary to provide the necessary support. Which factor is more effective under the grueling process of war—a faith fed by beliefs implainted in early life or the sterner comfort of convictions painfully acquired in later life—is itself a fascinating but complicated problem.

In response to the question whether the individual considered himself very or moderately religious 95 out of 98 answered in the affirmative in the neurosis group, 87 out of 99 in the control group. There was somewhat of a preponderance of disbelief in the emotionally sturdier group, apparently.

Other findings were inconclusive; 51 out of 82 in the neurosis group believed in a life after death, 49 out of 80 in the control group; 25 out of 89 in the neurosis group, 22 out of 90 in the control group believed in a "lucky star" or some such protecting power.

(l) *Attitude Toward Society and Toward the Army.*—The attitude of a man toward the society in which he has his roots is doubtless an important factor in morale and indirectly, in his willingness to sacrifice himself on behalf of this society. If a man is convinced for one reason or another that society has little to offer him, that his lot will be a sorry one whether we emerge triumphant from the war or succumb, he is apt to show less ardor and powers of resistance. Similarly if a man thinks that while he is "sweating it out" on the battlefield the burdens of war are being more or less equally shared by the rest of his community he is likely to fight with a stouter heart than if he has the idea that night-club life, revelry, exorbitant wages and profits are the order of the day at home, and that a large proportion of the population remains untouched in this "total war."

Each subject was asked whether he thought that his country offered opportunity for a happy life for people of his means, whether he has as much to gain by the winning of this war as the next man, whether he thought that in general people at home were contributing adequately to the war effort. Only if an attitude of resentment or rebellion was quite pronounced—above and beyond the mere complaint of "too many strikes," which was so common as to lose significance—was the subject described as a mal-content. Of these there were 11 out of 98 in the neurosis group and 6 out of 99 in the control group.

The attitude toward the Army was probed by asking each man whether he thought

he had gotten a square deal in the Army, whether he considered his training adequate, and the degree of confidence felt in his leaders. Twenty-six of 97 expressed themselves as discontented in the neurosis group, 22 out of 100 in the control group.

There was, thus, a somewhat smaller number of men with gripes against society and against the Army in the control group. One wonders if this may in part not be due to the fact that the men who broke down in combat harbor deep-seated feelings of inadequacy and project on to society and the Army the responsibility for their poor performance. On the conscious level, at any rate, most of these men disclaim any personal responsibility. Only 6 out of 95 were aware of any feelings of self-reproach for falling out; the rest felt that they had done all that was humanly possible.

(m) *Mobilization of Anger During Combat and Squeamishness About Killing.*—One of the most radical readjustments that the non-professional soldier must make is to the necessity of killing. Brought up on the decalogue, taught from earliest childhood to suppress his aggressive and sadistic tendencies on behalf of an orderly society, exhorted by many formative influences to cultivate the virtues of tolerance, compassion, helpfulness, the man is suddenly thrown into a situation where killing is not merely an obligation but a way to fame and glory. That this sudden shifting of gears is an operation too taxing for some is not surprising; the wonder is rather that as many as do possess the required adaptability. Those whose aggressiveness and sadism never were very far beneath the surface or who placed a rather low premium on human life to begin with will make the necessary transition with less difficulty. Others must steel themselves for the task by invoking intellectual sanctions. Others will be comforted by the simple truth that it is a matter of kill or be killed.

Some observers have stressed the importance of anger as a mechanism to facilitate the adjustment of a soldier to his lot. Under the sway of this emotion, it is reasoned, strong forces are unleashed that enable him the better to endure and to sacrifice himself; anger, the desire for revenge for his fallen buddies, render him more immune to the gruesome sights, sounds and smells of the battlefield. It was thought of possible value to test this formulation by studying the mobilization of anger during combat. In the neurosis group 40 out of 90 experienced anger while engaged in combat; in the control group 44 out of 90. There was therefore no significant difference between the groups.

I was interested to find out whether any reciprocal relationship existed between mobilization of anger and squeamishness about killing, whether a "real mad" would dispel the strictures imposed by the super-ego. In the neurosis group 21 out of the 74 who gave adequate response felt neither anger nor squeamishness, 12 felt both anger and squeamishness, 26 were angry and devoid of feelings of squeamishness, while 15 were unaware of anger and were troubled by squeamishness. A reciprocal relationship existed, therefore, in but 41 of the 74 cases. In the control group, of 75 cases 33 were devoid of both anger and squeamishness, 5 were both angry and squeamish, 31 were angry and free from squeamishness, while 6 were free of anger and aware of squeamishness. In this group only 37 of 75 showed the reciprocal relationship.

(n) *Relief from Ventilation of Combat Experiences.*—One gained the impression, after speaking to a number of combat casualties, that most of them desired nothing better than to forget all that they had been through. The popular version of the soldier returned from the wars as a willing purveyor of anecdotes to the contrary, these men would have welcomed it if a curtain could have been drawn over this segment of their past. This is understandable since the clinical amnesia of the hysterical state which blots out the frightful experiences of the battlefield and, in some cases, spreads even to include the relatively innocuous remote past in the soldier's life, is but an intensification of the need to forget.

Each subject was asked whether he obtained greater relief when he discussed his combat experiences with others or when he tried to forget them. In the neurosis group only 5 out of 95 felt better when talking about their experiences; in the control group 33 out of 88 had no qualms about sharing their experiences with others.

Ventilation of unpleasant experiences of the type encountered on the battlefield may afford relief to some by allowing a leisurely living-over of events too sudden and too catastrophic to be absorbed and assimilated by the organism at the time. It fulfils the same function as the anxiety dream after an overwhelming trauma. Perhaps also there is a dilution of the sense of guilt when the individual shares his part in the performance of aggressive deeds with others similarly involved. In the control group there were many who bore physical scars as testimony of the part they played in battle; justifiable pride and exhilaration doubtless played a rôle in their willingness to talk. In the neurosis group, on the other hand, a sense of ignominy and frustration about their performance could well reinforce their wish to forget. At any rate it seems wise for the public at home, animated by the need for vicarious thrills, not to press the returned soldier too persistently for his saga.

(o) *Previous Combat Experience.*—Theoretically one would anticipate that the veteran of former campaigns successfully withstood would be immune to neuropsychiatric breakdown. One does, however, see men who have completed one or more campaigns without mishap and who nonetheless succumbed in the current campaign—as though the cumulative effect of stress and strain finally makes them reach the breaking point. Ten men in the neurosis group had had previous combat experience in one, two or three campaigns; 15 in the control group were in the same category.

Of the 10 in the neurosis group 6 had a history of treatment for nervousness while in the Army. One of these stated explicitly that his nervous symptoms came on during a previous campaign; in the other cases no such information was obtained since the questionnaire unfortunately was not specific enough on this point. The matter is of some importance because, if men were to be excluded from combat on the basis of the criterion mentioned earlier in this paper—namely, treatment for nervousness prior to combat in the Army—there would in this case have been excluded 5 men who stood up well, assuming that all of them were treated for nervousness prior to combat; whereas, if all of them had been treated for nervousness only after exposure to combat in previous campaigns no candidate of this type would have been excluded. One would have fewer misgivings about excluding a man who breaks down after a bit of one campaign and repeats the performance in the next since he is of dubious value from the military standpoint.

The present study, detailed as it may seem in many respects, is still far from complete. So many factors determine whether a man carries on well in combat or not and there are so many possible combinations of these individual factors as to render the scope of the investigation almost limitless. Anyone who has been in contact with combat troops can draw up a formidable list of such factors which are not included in the present discussion: racial traits and traditions, neighborhood influences, ideologies, the prestige of various branches of the service, the tide of battle whether forward or backward, the element of surprise in the form of unfamiliar terrain or weapons or tactics, to mention only a few. Then there are the subtler psychologic determinants which have not even been touched on: the degree of development of the personality structure away from the early narcissistic stage, the strength of identifications with heroes and with the killed and wounded, anxiety masked under the facade of a dare-devil attitude which collapses under certain pressure, again to mention only a few. It is further recognized that a survey of this extent covers only a small segment of a vast Army and presents but a microcosmic picture of the whole. Its conclusions must be regarded as tentative until applied to and checked by much larger numbers.

III. Summary

1. A comparative study of 100 neuropsychiatric combat casualties and of 100 control cases is reported.

2. There was a slight preponderance of older men in the neurosis group.

3. The incidence of poor family background and early environment was about twice as great in the neurosis group.

4. The average number of neurotic traits was higher in the neurosis group.

5. Many more cases in the neurosis group gave a history of treatment for some nervous condition in civilian life and in the Army prior to combat.

6. The application of (4) and (5) for screening purposes would have eliminated 52 men of the neurosis group from combat, 12 of the control group.

7. The potential neuropsychiatric casualty shows a tendency to be more nervous, inclined to worry, dependent and seclusive than the sturdy soldier.

8. Conflicts with the law and alcoholic habits were more frequent in the control group.

9. Religious tendencies were more prevalent in the neurosis group.

10. Discontent with society and with the Army was slightly more in evidence in the neurosis group.

11. Physically wounded soldiers showed less reluctance to discuss their experiences than the psychically wounded.

12. The limitations of the present study and reasons for considering its conclusions tentative until further tested are discussed.

THE PROBLEM OF THE SEVERE PSYCHONEUROTIC IN THE ARMY AIR FORCES

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I. Introduction

Unit army commanders and medical officers are well aware of the difficulties which the sufferer from severe psychoneurotic complaints encounters in his attempts at adjustment to the necessary demands of military life. Commissioned and non-commissioned officers have often labored unsuccessfully in an attempt to find suitable assignments for the chronic neurotic patient repeatedly sent to their command. Surgeons, orthopedists, internists and the general medical officers have often seen their specialized wards more or less filled with various types of maladjusted military personnel. It is in an attempt to understand what happens to the life-long psychoneurotic when the nature of his illness is unrecognized at induction and subsequently he is kept too long in the service, that this study is presented. Shortage of man-power, difficulty of draft-boards in filling their quotas have probably caused leniency in inducting the relatively severe psychoneurotic. Similarly, in an attempt to utilize every available soldier in the service, the medical officer often tries to use the severe neurotic, overlooking the serious and deep-seated personality disorder he presents. It is regrettable that a personality evaluation is not made a requisite in the examination of every patient with an ill-defined somatic complaint. Too often it appears that the neurotic who introduces himself with a complaint of rheumatism is treated symptomatically and valuable training is lost on a life-long inadequate soldier whose personality illness if early recognized would result in prompt disposal or an assignment more in keeping with his limitations.

Michaels,[1] in a brief but excellent article, reviews the activities of the psychoneurotic in the armed forces. He states:

> The psychoneurotic in the field answers sick call repeatedly. The medical officer for a while makes every effort to encourage and assure him that he is in good physical condition. This in addition to a mild sedative may temporarily keep him on duty. Gradually he will be told that he is not sick, that it is all in his mind and to stop answering sick call. A strict company commander will insist that he continue in the field; a more understanding one will assign him to duty around the company area. He will fall out on conditioning marches, complain of his inability to continue with a field problem and be among the first to be evacuated to the rear during maneuvers.

Michaels finally concludes that "the psychoneurotic is mentally and constitutionally unsuitable for army life. His use on limited service is questionable. He can contribute much more to the war effort by remaining in civilian life."

Brosin[2] is more optimistic. He states that mild neuroses lend themselves well to placement in protected jobs, but with regard to the severe psychoneurotic he observes that "because the line officers had arduous training schedules, with the best will in the world could not use many of the men returned by the psychiatrists." Since it was finally stated in a memorandum issued by the Adjutant General that all soldiers with mental disorders should be detected and eliminated before reaching the staging area, Brosin[2] concludes that "the casual and often naive attitude of many medical officers, including some psychiatrists under pressure, who return mentally sick individuals to duty even after a period of observation, can no longer be justified by a vague hope or a punitive attitude."

From the above it is evident that in spite of our excellent screening systems severe psychoneurotics still are inducted into the Army, and in spite of our excellent psychiatric program in the service, the severe psychoneurotic is still retained too long and oftentimes given an assignment beyond his capacity to perform. The writer has been impressed with the relatively large numbers

[1] Michaels, Michael. "The Psychoneurotic in the Armed Forces," Am. J. Psychiat., 99: 651-653, March 1943.

[2] Brosin, Henry W. "The Unfit: How to Use Them," American Society for Research in Psychosomatic Problems, Proceedings of the Military Session, Detroit, May 9th, 1943, pp. 20-28.

of psychoneurotics in the service who gain admission to the medical and surgical wards; and especially in the small hospital where no trained psychiatrist is readily available, require prolonged hospital study, countless diagnostic procedures and numerous examinations before the true nature of their illness is brought to light. This adds an unnecessary burden on the already busy internist or surgeon and as a result the psychoneurotic receives much of the time which should be devoted to the patient requiring his specialized care. It is apparent too that such patients were often studied in large installations, often by psychiatrists or by a mental hygiene unit and dismissed with brief words of reassurance or with some prescription for symptomatic relief. Too often the neurotic is allowed entrance to a service school requiring definite personality stamina or assigned work beyond his capacity. The difficulty which such individuals present to their subsequent organization commanders, instructors and unit medical officers needs no elaboration.

Several factors seem to operate, unwittingly for the most part, in the failure of early detection, evaluation and possible disposition of the neurotic. A failure to recognize symptoms of personality disturbance and as a result treatment by physical measures or drugs is often apparent. Over-optimistic results of psychotherapy appear to lead the psychiatrist at times to forget the life-long nature of the problem and to see definite improvement in slight superficial gains. A desire to be rid of a problem patient may at times cause the medical officer to minimize a mental illness especially when the soldier's transfer to another organization is imminent. The writer has been impressed by the relatively large number of patients whom he has seen repeatedly on an outpatient basis as they were referred to him for approval whenever a shipment of enlisted men to another organization was requested. Both the unit commander and the medical officer seem to have the same unrecognized motivation. Finally a desire to have a low discharge rate seems an ever present factor in retaining non-effective soldiers in the military service.

II. Methods and Material

The case records of 25 severe psychoneurotic patients were studied by the writer during a four-week tour of temporary duty in a small station in the southwestern United States. Cases whose illnesses were incurred in line of duty, aggravated by the service or whose symptoms were incurred in combat are excluded. All cases with a definite suggestion of a physical disability are likewise not included. All patients presenting evidence of constitutional psychopathy were also excluded. No attempt was made to include cases of a moderate or mild degree of neurosis and in whom retention and adjustment in the Army was a likely possibility. All the patients here studied had a life-long history of neurotic tendencies and all had symptoms so severe that no doubt was experienced regarding the necessity for separation from the service. Since the station where these observations were made had no regularly assigned psychiatrist, a better opportunity presented itself for the study of a large group of patients with psychosomatic complaints than is usually seen in a small station hospital of like size. Finally since the organizations stationed there were in a relatively advanced state of training, it was possible to study a group of patients all of whom had had more than a full year of army service.

All of these soldiers were studied on a hospital basis. Many were first seen as outpatients but when the severity of their symptoms and resultant need for disposition became apparent they were hospitalized for final study and separation from the service. A complete psychiatric history and a thorough review of their army career was obtained from each. A particular attempt was made to obtain their impressions of previous medical interpretation, their subjective complaints during earlier periods, their performance at schools and their manner of handling their various assignments. They were questioned at length regarding previous periods of hospitalization and treatments received.

The fact that the patients were relied upon so extensively for the above information may make this study open to criticism. However,

all patients were fully competent and after the first few interviews it was felt that a satisfactory rapport was achieved with each. Where possible their histories were checked with previous clinical records and it was found that the patients remembered the various details with a surprising accuracy. This group will now be examined from three standpoints: (1) the patients who came to attention during basic training; (2) hospitalizations prior to final admission for disposition; and (3) the patients' performance at the various army technical schools with some attention to their physical well-being prior and subsequent to such attendance.

III. Patients Seeking Medical Attention During Basic Training

As would be expected the vast majority of our patients admitted having gone on "sick call" or sought medical help during this initial phase of their army career. Table I shows the reasons which prompted them to seek this aid. The psychogenic nature of their complaints is clearly recognized and as would be expected, nervousness, rheumatism, and gastric distress head the list. While one complained of "ear trouble" and another of "bad colds," questioning revealed that tension and anxiety in the first, and asthenia and general weakness in the second, were the real complaints in these two cases.

TABLE I

Patients coming to medical attention during basic training and reason for seeking help:

a. Nervousness and anxiety	7
b. Rheumatic complaints	3
c. Stomach trouble	3
d. Fainting spells	2
e. Poor performance on psychological tests (aviation cadet)	1
f. Painful feet	1
g. Repeated bad colds	1
h. Paralysis	1
i. Convulsions	1
j. Ear trouble	1

Since it is felt that each case in this series presented such a life long neurotic picture it is the writer's opinion that had an adequate personality study been done during basic training all of the cases who came to medical attention during that period would have been eliminated from further service or at least that any army career would have been planned for the individual more in keeping with his limitations than that to which he was subsequently exposed. An attempt was made by questioning the patients to determine what, if any, disposition was recommended after their first referral for medical help. Only one patient was referred for detailed psychiatric study in a mental hygiene unit. Three were recommended for army technical schools; 2 were assigned to a modified type of general duty; one patient stated that the medical officer thought he with "gold bricking" and hence resolved to "suffer in silence." The symptoms of 3 patients were attributed to organic illness, one receiving injections for arthritis and one being studied for eighty days in a hospital for "stomach trouble" and discharged to duty when "each and every X-ray turned out to be negative"; a third patient had headaches which were consistently interpreted to him as being due to "sinusitis." One patient alleges that his rheumatism complaints were "treated by pills" at his initial and at subsequent stations. A final patient was placed on "limited service."

Allowing a severe psychoneurotic patient, in difficulty because of his symptoms during basic training, to be assigned to service schools or interpreting his symptoms on a purely organic basis, are the two situations most open to criticism. Certainly the aviation cadet who fails during his training because of poor performance on his psychological examinations or because of severe anxiety should be assigned to a school of aerial gunnery only under the most unusual circumstances. Radio schools, teletype schools, armament schools all require a sound personality which was clearly lacking in the cases under discussion. Neither the service nor the patient is ever benefited when the conversion symptoms which result from prolonged discouragement are interpreted strictly as arthritis. Likewise assigning a patient to another type of duty without previous and thorough psychiatric study will seldom be of benefit. Any implication of "gold-bricking" or a like interpretation is only likely to bring out a previously dormant resentment and intensify all symptoms.

Since all of the patients here studied completely failed in their subsequent adjustment, it is clear that only a thorough study and evaluation of the individual could have brought about a more effective handling of this group.

IV. Hospitalization Prior to Final Admission for Disposition

Only 5 of the 25 patients denied having been hospitalized prior to the final admission when they were seen by the writer and a disposition recommended. All 5, however, had experienced difficulties in the service. The first was so convinced of the existence of "lung trouble" that he refused to live in a tent while on maneuvers and caused considerable difficulty to his company on these exercises. The second attended radio school and became so "crazed with nerves" that he had to be removed by his medical officer. He was later sent to teletype school where headaches became so severe that a similar removal was necessary. A third patient experienced constant difficulties because of "temper tantrums." A fourth patient was always troubled by extreme nervousness and instability, and a fifth was unable to perform his work because of anxiety and chronic fatigue.

Table II summarizes the prior hospitalizations of the remaining 20 patients. It is apparent that only a small number (6) admitted being hospitalized during their basic training. This is perhaps explained by the fact that the basic duties are not too rigorous and because individual responsibilities are not as great as they were destined to become during subsequent assignments. By permanent duty stations in this discussion is meant those in which the soldier was in a particular phase of his training with a definite organization. This designation does not include any of the various service schools he may have attended between basic training and joining his first and subsequent organizations.

By far the largest number required hospital attention at their first permanent duty station. Twelve were admitted to hospitals during this period. Six received hospital attention during their second station, 3 at the third and 2 at the fourth.

The length of time which these patients spent in hospitals is worthy of attention. One patient could not recall how long he had been hospitalized. Excluding brief periods of hospitalization for such illnesses as tooth extractions, nasopharyngitis, etc., we find that 19 patients averaged 78 days each in hospitals for complaints similar to those which eventually led to separation from the service. In 17 patients nervousness, stomach distress and headaches constituted the principal complaints during the present and previous hospitalizations. Seven patients averaged 87.3 days in hospitals because of "nervousness"; 6 averaged 72.5 days for "stomach trouble"; and 4 patients averaged 57 hospital days because of headache. One isolated patient who complained of tinnitus spent approximately 90 days in a general hospital and one who complained of "spells" spent 78 days, being sent back to duty each time when allegedly the examining officer determined that the attacks were not "really epileptic."

It was interesting in questioning these patients to try to determine why a more adequate psychiatric evaluation and disposition had not been previously made. A failure to appreciate the deep and long-standing nature of the personality problem seems to have been the most common single error. Eleven patients were sent to duty of much the same sort as they attempted prior to their hospitalizations. One patient told the writer that his nervousness was considered a part of a "psychopathic personality" and a discharge on that basis was contemplated but no action taken. Three were allegedly disqualified for overseas but no further modification in their work program was provided.

An attempt to explain the patients' symptoms on an "organic basis" was seen in the histories of several soldiers. One patient with "stomach trouble" was told that his symptoms were due to "too little acid" and was treated accordingly; two patients with similar complaints were sent to duty after repeated X-ray studies proved negative. In one patient headache was diagnosed as being due to "allergic rhinitis" and the one patient in our series with "spells" was repeatedly sent to duty when it was determined that the attacks "were not really epileptic." Only

TABLE II

HOSPITALIZATIONS PRIOR TO FINAL ADMISSION FOR DISPOSITION

Case No.	Reason for hospitalization and phase of training where it occurred	Patient's estimate of length of hospitalization	Patient's account of action taken
1.	Diffuse rheumatic complaints (at 3d Perm. Duty Sta.).	Not known.	Trial of further duty recommended.
2.	a. "Tooth extraction" (at 1st Perm. Sta.).	3 days.	Duty.
	b. "Bad nerves" (at 2d Perm. Sta.).	90 days.	Trial of further duty.
	c. "Bad nerves" (at 3d Perm. Sta.).	90 days.	Discharge considered.
3.	"Headache" (during basic training after having previously failed aviation cadet and aerial gunnery schools for a like reason).	7 days.	Disqualified for overseas duty.
4.	"Stomach trouble and headaches" (at 1st Perm. Sta.)	21 days.	Duty—no action taken.
5.	"Nervousness" (at 1st Perm. Sta.).	14 days	Duty—no action taken.
6.	No history of prior hospitalization.		
7.	"Stomach trouble" (at 1st Perm. Sta.).	30 days.	Disqualified for overseas duty.
8.	a. "Stomach trouble and bad feet" (at 2d Perm. Sta.).	35 days.	Duty.
	b. "Stomach trouble" (at 2d Perm. Sta.).	21 days.	Scheduled to appear before board of officers but transferred to another organization instead.
	c. "Stomach trouble" (at 3d Perm. Sta.).	49 days.	Trial at duty with another organization.
	d. "Stomach trouble" (at 4th Perm. Sta.).	49 days.	Scheduled to appear before board but action deferred when X-rays proved negative.
9.	a. "Backache" (at 4th Perm. Sta.).	30 days.	Discharge recommended. Patient protested saying it would make him too nervous to go home.
	b. "Backache" (at 4th Perm. Sta.).	16 days.	Duty—told he'd have to bear his symptoms.
10.	Weakness (Basic).	7 days.	Duty.
11.	a. "Headaches" (at 1st Perm. Sta.).	7 days.	Too weak for general duty so recommended for radio school.
	b. "Headaches" (at 2d Perm. Sta.).	42 days.	Duty.
	c. "Headaches" (at 2d Perm. Sta.).	75 days.	Discharge recommended but disapproved.
12.	No prior hospitalizations.		
13.	a. "Hemorrhoids and nervousness" (Basic).	90 days.	Duty.
	b. "Headaches and sinusitis" (Basic).	90 days.	Duty.
14.	a. "Spells" (at 1st Perm. Sta.).	9 days.	Duty because spells were thought non-epileptic.
	b. "Spells" (at 2d Perm. Sta.).	9 days.	Do.
	c. "Spells" (at 4th Perm. Sta.).	60 days.	Do.
15.	a. "Stomach trouble" (at 1st Perm. Sta.).	24 days.	Duty.
	b. "Nasopharyngitis" (at 1st Perm. Sta.).	34 days.	Duty.
	c. "Gastric ulcer" (at 2d Perm. Sta.).	96 days.	Duty.
	d. "Psychoneurosis" (at 2d Perm. Sta.).	115 days.	Duty.
	e. "Psychoneurosis" (at 2d Perm. Sta.).	54 days.	Duty.
16.	No prior hospitalizations.		
17.	a. "Fainting" (Basic).	2 days.	Duty.
	b. "Headaches" (at 1st Perm. Sta.).	7 days.	Duty—treated for allergic rhinitis.
18.	"Nervousness and leg pain" (at 1st Perm. Duty Sta.).	14 days.	Duty—discharge disapproved.
19.	No prior hospitalization.		
20.	No prior hospitalization.		
21.	a. "Psychoneurosis" (at 1st Perm. Duty Sta.).	38 days.	Duty—disqualified for overseas.

TABLE II.—CONTINUED

Case No.	Reason for hospitalization and phase of training where it occurred	Patient's estimate of length of hospitalization	Patient's account of action taken
	b. "Psychoneurosis" (at 1st Perm. Duty Sta.).	14 days.	Duty.
	c. "Psychoneurosis" (at 1st Perm. Duty Sta.).	10 days.	Duty.
22.	"Ringing ears" (at 1st Perm. Duty Sta.).	90 days.	Duty—treated by ear specialists."
23.	a. "Hemorrhoids" (Basic).	21 days.	Duty.
	b. "Flu" (Basic).	7 days.	Duty.
	c. "Stomach trouble" (at 1st Perm. Duty Sta.).	30 days.	Duty—told trouble due to "too little stomach acid."
24.	"Stomach trouble" (Basic).	80 days.	Duty—when all X-rays proved negative.
25.	a. "Psychoneurosis" (at 2d Perm. Duty Sta.).	31 days.	Duty.
	b. "Psychoneurosis" (at 2d Perm. Duty Sta.).	51 days.	Discharge recommended but someone implied "gold-brick" and proceedings stopped.

one patient interpreted the medical formulation as implying that he was a "gold-brick" and explained his retention in the service on this basis. Administrative difficulties such as being transferred while disposition proceedings were being considered, or an alleged disapproval of a contemplated discharge, were operative in 3 cases. One patient was allegedly recommended for a service school and one was allegedly sent for further trial at a different type of organization.

V. The Psychoneurotic at the Army Service Schools

Eleven of the 25 patients in this series attended service schools. Even from this small group it is apparent that little is gained in sending the severe psychoneurotic to a technical training school. Table III summarizes their performance prior to attendance, while at school and subsequent to their dismissal or completion of their respective courses. Five patients completed a school to which they were sent. Only one of these claimed to have done well. Of the others, one attended aviation mechanics' school and complained throughout of stomach distress but managed to complete the course. When he was later sent to aerial gunnery school he failed rather early. A second patient at aviation mechanics' school was always "miserable and sick." A third attended radio school and although he completed his training, was always sick, drowsy and fatigued. Another patient completed a school of aerial gunnery but was always uncomfortable by virtue of severe anxiety. A final patient was expelled from teletype school for a disciplinary offense, later completed schools of armament and aerial gunnery but suffered from stomach trouble throughout and required considerable attention from his flight surgeon.

Six patients who attended technical schools failed. One patient failed to complete courses in each of three schools to which he was sent in quick succession. He was removed from aviation cadet school because of poor performance on psychological tests, later sent to a school of aerial gunnery and disqualified because of headaches and fainting spells and was finally expelled from a teletype school because of an unauthorized class absence. A second patient was removed from a school of aerial gunnery because of stomach trouble and failure on his examinations. A third patient was removed at his own request from an aviation cadet class and subsequently removed from radio school because of extreme nervousness. A fourth patient was removed by his medical officer from radio school and subsequently from teletype school because of constant headaches. A fifth was expelled from teletype school because of disciplinary offense, and a sixth failed to complete radio school because of failure to attain the necessary speed.

Table III shows that the subsequent performance of all the above mentioned students was uniformly unsatisfactory. The one patient who reported that he did well in a specialists' school subsequently spent an esti-

TABLE III

THE PSYCHONEUROTIC IN THE ARMY SERVICE SCHOOL

	Performance prior to attendance in school	Performance in school	Subsequent performance in army work
1.	(Case 2) Basic, "Always weak and miserable."	"Did well."	An estimated total of 183 days of hospitalization and ultimate separation from the service was necessary.
2.	(Case 3) Attended school immediately after induction.	(a) "Washed out because of poor performance on psychological tests." (b) "Disqualified because of headaches and fainting." (c) "Expelled because of unauthorized absence from class."	Hospitalized for persistent headaches and separation from service recommended.
3.	(Case 4) Basic, Had to be taken off general basic training because of painful feet.	(a) "Sick all the while because of stomach trouble but managed to complete course." (b) "Washed out because of stomach trouble and failure in examinations."	Separation from service because of persistent stomach distress.
4.	(Case 5) Attended school immediately after induction.	(a) "Taken out on own request because of nervousness and anxiety." (b) "Washed out because of extreme nervousness."	Hospitalization and changes of jobs because of nervousness and severe compulsions. Separation from the service was ultimately necessary.
6.	(Case 10) Basic—Sick always because of passing out spells. Found too sick for general duty.	(a) "Passed the course, but always drowsy and weak."	On manœuvers copied message wrong with resultant difficulty to organization. Relieved from work. Tried on duty with Quartermaster Corps, but separation from the service became finally necessary.
7.	(Case 11) Basic—"On sick call several times for nervousness worked up by mental hygiene unit."	(a) "Always too nervous but finished the course."	(a) Permanently grounded at first station after completing gunnery training. (b) Repeated hospitalization and ultimate discharge necessary.
8.	(Case 16) Basic—"Sick call for tension."	(a) "Severe headaches and nervousness. Removed by medical officer." (b) "Sick with constant headaches and removed again by medical officer."	At first station attempt made to interest him in teletype work. Severe panic state resulted and discharge accomplished.
9.	(Case 23) Basic—"Hospitalized for hemorrhoids and flu."	(a) "Expelled for disciplinary offenses." (b) "Finished the course but miserable because of stomach trouble." (c) "Sick and miserable. Flight surgeon thought of grounding on many occasions."	(a) Permanently grounded at first redistribution center for stomach trouble. (b) Hospitalization and subsequent discharge necessary.
10.	(Case 24) Basic—"Hospitalized 80 days for stomach trouble."	(a) "Did poorly—washed out for slow speed."	Sent overseas but was completely ineffective in several jobs. Evacuated to States and eventually discharged.

mated 183 days of hospitalization. In each instance every patient in the series, regardless of his progress while at school, did so poorly on repeated attempts at duty that separation from the service finally became necessary.

More attention to the health of the prospective technical school candidate during basic training would have called most of these patients to psychiatric attention. Two patients attended aviation cadet schools without prior basic training. Of the others

one was hospitalized "for a hemorrhoidectomy and flu." All of the remainder complained of difficulties suggestive of a personality disorder. An inquiry into their subjective feelings during basic months would have shown that some of these individuals had to be removed from general duty because of painful feet, others were "weak and miserable," while stomach trouble, anxiety and fainting spells would have been encountered in their histories. To the writer it seems that unless an enlisted soldier possesses some rare skill, poor performance during basic training or any significant subjective symptoms therein should certainly disqualify him for the rigid and oftentimes difficult technical school training in which performance will often be poor and subsequent adjustment virtually impossible.

VI. Discussion

In returning the severe psychoneurotic to duty the psychiatrist frequently loses sight of the fact that in so doing he is often relieving himself of a problem and giving the unit officer the sometimes impossible task of finding a suitable assignment for the patient. Similarly minimizing the severity of symptoms, or over-emphasizing the results of superficial psychotherapy to the extent that the patient is allowed to be sent to school or removed to another station, only produces the unhappy result that another medical officer will eventually inherit the problem. Further expense of useless hospitalization and training of a non-effective for an assignment beyond his capacity is the only result. Since so many of these patients at subsequent stations arrive on medical and surgical services, psychotherapy can best be carried out at the original installation where the necessary data are already accumulated and useless further training and hospitalization unnecessary.

The following suggestions it is felt would contribute in some degree to a more effective handling of the psychoneurotic in the service:

1. Continuous evaluation of total personalities, their capabilities, their limitations and performance potentialities by every medical officer in the service. It is felt that too often the orthopedist recommends full duty on the basis of normal extremities; that too often the internist looks upon the soldier patient as "healthy" by virtue of normal heart and lungs and that too frequently all medical officers overlook limitations of intellectual endowment and a life-long neurotic background because of the limitations which their particular specialty places upon them. A minimum of psychiatric orientation on the part of all medical officers will result in an early estimate of the rôle which personality factors are playing in the symptom-producing mechanism, and so avoid many useless and costly laboratory procedures and result in an earlier referral of the problem to the psychiatrist.

2. It is felt that the transfer of the neurotic patient from one station to another should be discouraged. Often the psychoneurotic of mild or moderate degree is able to make an adequate adjustment with proper placement and brief occasional sessions of psychotherapy. To the writer it seems that the effectiveness of such a soldier is only lessened by a transfer whereby oftentimes the whole process of medical and psychological study must be repeated. It appears too that the psychoneurotic often finds his way to a small station with limited personnel and without specialized facilities for psychiatric care and diagnosis. Thus an unnecessary burden is placed on the staffs of our smaller installations and lessens the time that can be devoted to the non-psychiatric patient.

3. A thorough study of the soldier from the psychiatric point of view prior to his attendance in a service school and a complete evaluation of the student soldier who fails in such schools would do much to lessen the army's psychiatric problem. The maladjusted individual is frequently an applicant for the army schools. An attempt to disregard a life-long anxiety or inadequacy seems to be the dominant motive. It is also felt that the psychiatrist, the unit commander and the unit medical officer often foster such attendance in order to be free of the problem which the severe psychoneurotic presents. When possible the failing student should be returned to his original organization and the solution and necessary disposition of the problem worked out there. A stringent

army policy to prevent the severe psychoneurotic from drifting from station to station would be of value and a firm refusal on the part of classification officers to allow a soldier who failed to complete one school course to attend another (except in unusual circumstances) would have untold benefits.

4. The discharge of the psychoneurotic who has failed at various attempts of adjustment should be whole-heartedly encouraged. In the opinion of the writer, such programs as "group psychotherapy," "mental hygiene," etc., while of undoubted benefit to the soldier with mild, recent or transient symptoms, often are productive of an attitude of over-optimism when the therapist is dealing with the severe life-long sufferer from psychosomatic complaints. Since in civilian life such individuals are treated by such methods as psychoanalysis, psychobiological distributive analysis and synthesis, etc., which often require years of persistent effort, it is difficult to determine how brief superficial group discussions can affect a life-long symptomatic disorder. Brief moments of encouragement are useless to the chronic sufferer from severe anxiety and its allied somatic components; the criminal psychopath with deep-seated resentment, a long history of civilian arrests, homosexual practices, and many military court-martials will seldom be changed by an appeal to his better nature or a brief explanation of why he behaves as he does. Finally, army commanders should ever realize that the severe neurotic has no place in the service and that oftentimes the psychiatrist who routinely recommends removal of such a patient after continual evidence of his ineffectiveness is serving his purpose better than his colleague who shunts such patient to other units or to "limited service" where the basic disorder seldom changes and the problem is only shifted elsewhere.

The foregoing remarks are not meant to imply an attitude of pessimism toward any programs to help the incoming soldier in his new life. Numerous personality symptoms will arise which immediately clear upon proper psychiatric handling, but errors are frequently made in the continued and prolonged retention of non-effectives in the service. The cases here presented could in no sense be considered merely "potential" casualties, but it is felt that each presented on induction and on numerous occasions in the service, a picture of a fully developed psychoneurosis. Treatment should always be a prime concern of every medical officer but before undertaking therapy in the military setting let us ask ourselves, "With what are we working? How severe and how chronic is the personality disorder and how modifiable is the personality in the immediate setting to which it is exposed?" An understanding of our limitations, an avoidance of an over-optimistic attitude as regards therapy when applied to our serious neurotic problems, will prevent the gravitation of such individuals to other units when the problem is only transferred, but seldom cured.

Summary

The severe life-long neurotic continues to be a problem in the army setting. Failure to detect the nature of his illness which often expresses itself early in basic training results in many useless hospital day and weeks lost in specialized training schools. An avoidance of an over-optimistic therapeutic attitude when applied to the severe psychoneurotic, together with a willingness to separate such patients from the service when necessary, will do much to lessen one of the army's foremost problems.

SOCIOLOGICAL FACTORS IN PATIENTS IN ARMY NEUROSIS CENTER AND THEIR RELATION TO DISCIPLINARY ACTIONS

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I. INTRODUCTION

In the Army Neurosis Center, ETO, certain statistical data are gathered on a form devised by Lilly and Parsons.[1] This form includes basic sociologic information recorded so as to be readily available for use in coding and transfer to Holerith cards for machine counting. The whole form includes some 80 items considered to be important, but for the present study only a few have been selected. It should also be noted that for the present study, due to the press of military movements, machine counting was not possible and that selection by hand had to be substituted. This manual procedure may have introduced more errors than machine counting; on the other hand, two conversions of the data have been avoided. The number of cases is not too large for manual counting and all counts were made to check accurately in the tables as they were constructed.

The cases in the army neurosis center are drawn from station and general hospitals throughout the United Kingdom and Northern Ireland. There are some soldiers from the Italian and Sicilian battle fronts though in the present study these are not numerous enough to justify separate handling as a special group. The cases in the neurosis center were, at the time these data were collected, for the most part the psychiatric casualties of troops in training for the now accomplished assault on the West Wall of Europe. They had survived a period of training in the United States and the strains incident to a war-time ocean crossing. The period actually spent in the European theater of operations varied widely from a few days to two years. In general, it may be stated that the soldiers represented in this study had survived one more selective experiential strain than those who broke down in the training period in the U. S. This fact must be kept in mind in comparing the results recorded with similar studies on psychiatric casualties in the zone of the interior.

It is a considerable defect of the present study that comparative data for the troops in this theater cannot be given. The problem of withholding data until all that one would like to have would be available was carefully weighed and it was concluded that the present study should be completed for its present interest, even though certain lacks are recognized.

The material consists of 968 cases admitted to the neurosis center. It should be recognized that the military situation has a part in determining the type of patient admitted to an army neuropsychiatric hospital at a given time. There are periods when drives are made to bring particular divisions up to the highest possible fighting efficiency and during such periods, men with any inadequacies whatever may be hospitalized, men who would be overlooked perhaps, in the absence of such special attention. During the time the cases here analysed were in the hospital, such a "clean out" was being made. Military psychiatric studies frequently neglect the obvious fact that the patients they study cannot be compared with other unselected groups. Absolutely correct evaluation not infrequently demands information which cannot be included for reasons of military security. The difficulties surrounding the accurate appraisal of any military medical statistics are legion; suffice it here simply to call this fact to attention. Table I gives the age distribution of the 968 cases studied.

In this study, data are presented on the work record, home financial status, the question of broken homes, marital status and the urban-rural status. In each case the factors are related to delinquency as evidenced by court-martial proceedings and, when the numbers are sufficient, to civilian arrests and recidivism.

Court-martial offenses are not the same as

[1] Lilly, Daniel M., and Parsons, E. H. A statistical method for the current study of military neuropsychiatric cases. (Unpublished manuscript, 1943.)

civilian delinquencies and require some comment. Casey[2] has dealt with the clinical aspect of the subject as it relates to this neurosis center. Refusal to obey the demands of a foreman in civilian life may result in the worker being discharged, but when the soldier refuses to obey the direct order of his superior commissioned or non-commissioned officer, he has committed a serious military offense. A civilian may get drunk and disorderly and get nothing more than a night in jail; in the soldier there is the added offense of bringing disgrace on the uniform which makes him liable to trial by court-martial. The court-martial is not used indiscriminately for any small and insignificant violation of the Articles of War, the Army Regulations, or orders, and many minor disciplinary actions are taken which do not require court-martial procedure. It should be understood that the soldier convicted before the court-martial may in no way be a criminal in the moral sense. He is much more likely to have willfully violated a rule he knows; the conviction is more likely to represent mal-adaptation to the military service than criminalism. On the other hand, the military courts also deal with all criminal offenses, however severe, though very few such cases are included in the group here under study.

TABLE I

AGE DISTRIBUTION OF 968 PATIENTS, ARMY NEUROSIS CENTER, ETO

	I 18-19-20	II 21-22-23	III 24-25-26	IV 27-28-29	V 30-31-32	VI 33-34-35	VII 36 +	Total
Number	119	234	183	143	104	91	94	968
Percent	12.3	24.2	18.9	14.8	10.7	9.4	9.7	100.0

TABLE II

COURTS-MARTIAL, CIVILIAN ARRESTS AND RECIDIVISM BY HOME STATUS

	Courts-martial Number	Courts-martial and civilian arrests Number	Number Recidivism
Normal homes (733)	113 (14.6%)	39 (5.3%)	43 (5.8%)
Broken homes (216)	53 (24.8%)	22 (10.2%)	21 (10.3%)
Critical ratio of difference	3.2	2.2	2.1

II. THE STATUS OF THE PARENTAL HOME

On all cases, the home status was recorded as normal or broken. Included in the broken homes group were homes deprived of one or both of the parents because of death, separation or divorce. A home was also classified "broken," if both parents were present, but the patient said there was incompatibility. The age of the patient at the time the home disintegrated is not available for study. Of 968 cases tabulated, there were 216 broken homes or 20.1 percent. It would be interesting to know how this compares with the percentage of broken homes in the background of soldiers generally, but this information is not available.

What is the relation in a group of military psychiatric cases between the status of the home and the frequency of disciplinary actions against the product of the home? In these 968 cases, the 216 broken homes produced 53 or 24.8 percent men who have had disciplinary trouble, while the 733 normal homes produced 113 military delinquents or 14.6 percent. The figures are equally striking when one considers those with both civilian arrests and courts-martial: 10.2 percent for the broken homes and 5.3 percent for the normal homes. Recidivism shows a similar picture, 10.3 percent for broken and 5.8 percent for normal homes, recividism being defined as having two or more courts-martial. Table II illustrates these findings by age groups and shows clearly the higher percentages of disciplinary actions arising in soldiers from broken homes in almost all age groups. The table includes the critical ratios of the differences obtained in statistical analysis and indicates high reliability of the figures. Of all cases admitted to this neurosis

[2] Casey, Jesse F. Disciplinary problems in a military neuropsychiatric hospital. (In print.)

center, the broken homes produce proportionately twice as many men with disciplinary difficulties as do normal homes. This conclusion is well recognized clinically and might be illustrated with many cases showing a direct etiological relationship of the broken homes to the disciplinary difficulty of the soldier.

III. Financial Status of Parental Home

An attempt was made to judge the financial status of the parental home on the basis of the patient's description of it. The information was usually gathered from the history and no special attempt was made to set up a formal system for grading. It is well recognized that such a method of grading has many pitfalls since it depends on the patient's veracity, the press of work (which determines to a large extent how full of contributory detail the medical officer's history will be), and the constancy of the recorder's definitions of his groupings. In our series, the data were further influenced by having been gathered by two individuals, though the change-over was gradual and the original recorder was present for consultation throughout the collection of the data. The general impression of the authors is that there has been a tendency to draw cases into the "adequate" group from either extreme so that this group represents a larger percentage than may be accurate. On the whole no brief can be made in support of any delineation except at the two extremes which are probably reasonably accurate. The categories used were:

Inadequate—represented by share croppers, etc., where actual want was present most of the time.

Marginal—actual want occasionally present, education interfered with by necessity for wage earning, etc.

Adequate—sufficient income to take care of all needs and some luxuries. Education not interrupted because of lack of finance.

Above Average—luxuries always available, "rich."

Obviously an estimate of financial status based on such subjective data and judgments can be compared only with data collected by the same examiners in similar millieu. No claims are made for any comparative value of these figures. On the other hand, they are reasonably standard for the data of this experiment, and may be used for a study of the relation between financial status of the home and the incidence of military delinquency. This relationship is shown in Table III.

The interpretation of these figures is difficult and of rather doubtful value in the light of the economic grading on which it rests. Nevertheless, it suggests that the trend is for delinquency to be more common in soldiers who grew up in homes falling in the financially submarginal groups. The number of cases in the "above average" group is too small and the number of unknowns too large to draw any inferences concerning the apparent high proportion of delinquency in the "rich" group. In general, the data indicate

TABLE III

Delinquency by Home Financial Status

	Courts-martial	
	Number	Percent
Inadequate (89)	20	22.4
Marginal (308)	47	15.5
Adequate (488)	86	17.6
Above Average (12)	4	33.3
Unknown (71)	18	25.3

that of soldiers admitted to an army neurosis center, those coming from the lowest income group show a disproportionately high number of military delinquents. Statistical analysis indicates a low factor of reliability for the conclusion drawn.

IV. Urban-Rural Status of Parental Home

The patient's military records include his home address which may be used in determining rural-urban status. This judgment is frequently made more correctly from statements in the history which tell of the home status directly or definitely indicate it in recording the occupation of the patient's father and his own occupation prior to entering the service. The data on urban-rural status are considered to be accurate and reliable. Table IV gives the figures. Table V shows the percentage of each group in which disciplinary problems were encountered.

The figures for the "Foreign Country" and "Varied" groups are so small in the light of

the number of unknowns, that no conclusions concerning them appear justified. It does appear that patients who are admitted to the army neurosis center and who have an urban background are more likely to have had disciplinary difficulties than those who have rural background. Statistical analysis indicates that this conclusion must be guarded, however (CR-1.9). Recidivism is distributed very much like single courts-martial; the 627 urban cases showing 6.8 percent with two or more court actions, the 241 rural cases but 4.6 percent with such actions.

TABLE IV

URBAN-RURAL STATUS OF PATIENTS IN ARMY NEUROSIS CENTER

	Urban	Rural	Varied	Foreign country	Unknown	Total
Number	627	241	40	16	44	968
Percent	64.6	25.0	4.1	1.7	4.6	100.0

TABLE V

DELINQUENCY BY URBAN-RURAL STATUS

	Courts-martial	
	Number	Percent
Urban (627)	119	18.9
Rural (241)	33	13.7
Varied (40)	8	20.0
Foreign country (16)	5	31.2
Unknown (44)	10	22.8

V. MARITAL STATUS

Table VI shows the percentages of the significant groups as to marital status. Separated and divorced groups are combined, since it is often merely the exigencies of the service which has prevented the completion of divorce proceedings in these cases, the emotional situation being almost identical in the two. The figure shows the expected rise in percentage married with increasing age.

The table shows clearly the effect of "time of exposure" to marriage in the earlier age groups. It is quite probable that a selective process is shown in the later age groups. There would appear to be two separable factors. First, married men are not drafted during these ages as frequently as are unmarried men, and secondly, some of the more elderly of the group are soldiers with long service who are confirmed bachelors; probably this latter group contains personalities which were unusual in that they chose the predominately male world of the peace time army as their millieu for living. The increasing rate of breakdowns of marriages as the age increases is probably an expression of the length of time the marriage has existed and thus been exposed to breakdown. No data are available for comparison, but it is probable that the rate of marital breakdown would be somewhat higher in the group of unstable personalities admitted to the neurosis center than in the army at large.

TABLE VI

PERCENTAGES, MARITAL STATUS OF PATIENTS BY AGE GROUPS

	18-19-20	21-22-23	24-25-26	27-28-29	30-31-32	33-34-35	36	Total
Single (574)	86.6	67.5	60.2	51.8	42.3	49.5	42.6	59.2
Married (307)	11.7	24.8	35.5	38.5	46.2	36.3	36.2	31.7
Separated / Divorced (53)	0	4.3	1.6	6.3	6.7	10.9	14.9	5.5
Unknown (31)	1.7	3.4	2.7	3.4	4.8	2.2	4.3	3.2
Total (965)								

What is the relation of marital status to military delinquency? Of 574 single soldiers, 115 had at least one court-martial (20.0 percent). Forty-eight of the 307 married soldiers had disciplinary actions against them (15.7 percent). Ten of the 53 soldiers whose marriages had been unsuccessful (18.9 percent) had been court-martialed during their army careers. Recidivism as defined above shows 7.3 percent in the single men, 6.8 percent in the married and 7.6 percent in those with unsuccessful marriages. The numbers are too small to breakdown by age groups. In

general, married men appear to be a little less likely to get into military disciplinary difficulty than unmarried men but the conclusion does not have statistical reliability (CR=1.6). Although the numbers are small, non-success in marriage is not significantly related to disciplinary failure in the army so far as this group of patients is concerned. Table VII presents the data outlined above.

TABLE VII

MARITAL STATUS AND DELINQUENCY

	Cases	Courts-martial		Recidivism	
		Number	Percent	Number	Percent
Single	574	115	20.0	42	7.3
Married	307	48	15.7	19	6.8
Separated } Divorced }	53	10	18.9	4	7.6

to delinquency has often been pointed out in clinical psychiatry and in criminology. Table IX shows that the usual relation holds with military psychiatric cases such as are admitted to the neurosis center.

Contrasting the group which had but one job with those who had two or more jobs indicates on statistical analysis that the conclusion is reliable (CR=2.3). In general it may be said that the more jobs a soldier held before coming into the service, the more likely he is to become a military delinquent.

TABLE IX

Number of jobs	Courts-martial		Recidivism	
	Number	Percent	Number	Percent
1 (264)	36	13.6	13	4.9
2 or more (672)..	132	19.6	53	7.9

TABLE VIII

PRE-MILITARY WORK RECORD

	JOBS HELD							
	(Student) 0	1	2	3	4	5	"Other bad"	Unknown
Number (968)	27	264	223	161	87	52	149	5
Percent	2.8	27.2	23.0	16.6	9.0	5.4	15.4	0.5

VI. PRE-MILITARY WORK RECORD

The final study to be reported concerns the pre-military work record. In the statistical form used, this is recorded only as number of jobs held, it being assumed that this will also be a measure of length of time a job is held. A single job, for instance, will represent a more stable occupational adjustment than multiple jobs. Again, it is a matter for some regret that figures for a non-patient group are not available. In some cases, no definite number of jobs could be made out in the psychiatric history and the categories of "several," "numerous" and "odd" had to be set up. In analysis, these were practically indistinguishable and they were combined under the term "other bad work record" for purposes of analysis. Table VIII presents the data. The number of cases is too small to be significant by age grouping, so only the totals were given. Zero (0) jobs means that the patient was a student when inducted or enlisted.

The relation of steady work adjustment

DISCUSSION

Whether sociological background determines personality or personality determines sociological status is a question that always gives rise to argument, an argument which is related to the ancient and unsolvable mystery of the relation of heredity and environment to the formation of the personality of a given individual. Whatever the basic relationship, however, it is recognized that psychiatric disorders vary in type and rate of incidence in accordance with variation in sociological status. The data on the group of patients in the Army Neurosis Center, ETO, are presented here in order to be available should the opportunity arise to compare them with similar data on a non-hospitalized group at some future time. Some of the data suggest that there are more factors indicating social disorganization in this group than might be found in an unselected sample from the Army as a whole.

In the neurosis center there are many patients who have been sent to hospitals

largely because they are aggressive, unwilling soldiers. These are usually classified as constitutional psychopathic states of one sort or another. These men are frequently court-martialed before an attempt is made to dispose of them through medical channels on the basis that they are too unstable for their services to be profitable to the Army. Before a court these soldiers are considered to be responsible for their actions, a concept that is unsatisfactory to many psychiatrists since it is felt that it is wrong to blame the soldier for the fact that his opportunities have been fewer for proper emotional development than is the case with the usual soldier. The data presented there show that some of this concern is justified—that a socially disintegrated background is related to susceptibility to becoming a military delinquent.

Conclusions

1. Nine-hundred and sixty-eight cases admitted to an army neurosis center are analyzed according to certain sociological factors. The age distribution of cases is given.

2. Normal homes produce a significantly smaller proportion of military delinquents than broken homes.

3. A rough gradation of financial status of the parental home of patient-soldiers is presented. While there is an apparent tendency for the homes with inadequate finances to produce a larger proportion of military delinquents than do homes with more adequate financial status, this is statistically not significant.

4. Urban-rural background is given for the 968 patients. Patients with urban background are somewhat more likely to be military delinquents than those from rural background.

5. The marital status by three year age groups is presented. Military delinquency is not significantly related to marital status in this group of patients.

6. Men who have held but one job before entering the service are less likely to become military delinquents than men who have badly disorganized work histories.

TWO DIFFERENT TYPES OF POST-TRAUMATIC NEUROSES[1]

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The question of the average incidence of post-traumatic neuroses has been investigated frequently and with varying results, largely dependent apparently upon emotional factors associated with both the type and place of accident, which may determine the development of persistent psychogenic disturbances. For instance, after the Cocoanut Grove fire in Boston in November 1942, 54 percent of the survivors developed post-traumatic neuroses(1), which for the most part were of the anxiety type. On the other hand, in a series of 200 patients with acute head injuries investigated at the Boston City Hospital since July, 1942, and followed for at least 6 months, the incidence of post-traumatic neuroses was much lower (Table I). Recent experiences with war neuroses has given evidence that practically anyone may reach his breaking point at which he is unable to maintain mental balance. There is a notable difference in the effect of accidents the circumstances of which are terrifying to an extreme degree, as was the case at the Cocoanut Grove fire, and the majority of other accidents among civilians, in particular head injuries, in which the actual incident is short and frequently devoid of any terrifying content.

TABLE I

INCIDENCE OF POST-TRAUMATIC NEUROSES

	Total cases	Post-traumatic neuroses, percent
Head injury patients.....	200	32
Cocoanut Grove disaster patients..	46	54

During the Cocoanut Grove disaster people were trampled, battered and burned. They felt choked, as if they were dying. On the whole, all or parts of these terrifying events, which took place before loss of consciousness, were subsequently remembered. As a result, immediately following injury the patients showed evidence of emotional shock. Most of them tried in vain to fight off recollections of the terrifying events. Fifteen of the 25 patients who developed psychiatric complications suffered from nightmares immediately following the disaster (Table II). These nightmares dealt in all cases with fire and destruction, thus distorting the real catastrophe but slightly. Five of these patients did not develop any psychiatric complications after the initial emotional disturbance had vanished. In contrast with these observations, patients who had suffered head injuries had nightmares, as a rule, after a considerable interval, usually not until the first or second week after returning home. Only 4 of the 40 patients had nightmares immediately following injury (Table II). These 4 patients reacted as the Cocoanut Grove patients to a frightening experience and their dreams, too, often repeated the accident. For instance, a 21-year-old laborer who had been pushed along for many yards by a car before hitting the street, relived this frightening experience in several anxiety dreams during the nights immediately following the accident.

TABLE II

FIRST APPEARANCE OF POST-TRAUMATIC NIGHTMARES

	Immediately after injury, No. of cases	Following hospital discharge, No. of cases
Head injury patients.....	4	36
Cocoanut Grove disaster patients.	15	1

None of the *delayed* nightmares repeated the accident in its actual form. The dream

[1] Read at the Centenary Meeting of The American Psychiatric Association, Philadelphia, Pa., May 15-18, 1944.

From the Neurological Unit, Boston City Hospital and the Department of Neurology, Harvard Medical School.

The work described in this paper was done under a contract, recommended by the Committee on Medical Research and Development and the President and Fellows of Harvard College. A wider statistical survey of the material on head injuries is to be published by the staff of the Neurological Unit, Boston City Hospital.

content was distorted, dealing with mutilation, head operations and similar destructive incidents. All of these patients developed post-traumatic neuroses of the anxiety type, which were disabling sometimes for more than a year. Such gradual change of dream content has been described by Kardiner(8) in cases of post-traumatic neuroses during and after the first World War.

Analysis of our cases following head injury reveals that the anxieties underlying the neuroses were not only related to the details of the accident itself but also were related to environmental difficulties which existed before the injury as well as after. These complications consisted of unresolved conflicts in relation to occupational, financial or other problems (Table III). Many of the

TABLE III

CONFLICTS IN POST-TRAUMATIC NEUROSES [1]

Related to	No. of cases
Pending litigation	20
Other diseases and injuries	13
Occupational problems	11
Domestic and marital troubles	9
Other financial problems	2
Selective service	1
Living alone	1
Other	2

[1] This table indicates the sum total of factors considered to underlie symptoms of post-traumatic neuroses in 52 patients in a series of 200 cases of head injury. In 7 instances two factors were given equal prominence.

male patients resented dangers related to their particular kind of occupation. Women resented being overburdened with housework. Their post-traumatic states prevented them from returning to their previous occupation, thus affording a "secondary gain" through neurotic symptoms. The patients who developed a clear cut compensation neurosis, which means that their anxieties were centered around the outcome of litigation, were those who had been harassed by financial difficulties without being able to see any solution for them. In a smaller number the most obvious conflict was in the domestic or marital sphere, the patients succeeding in eliminating unwanted relatives or delaying an impending decision on marriage on grounds of mental difficulties caused by the injury.

From this it is understandable why the onset of anxiety symptoms was usually delayed until the patients were faced with the necessity of returning to situations which had been charged with conflict(10). At first their physical disability had kept them away from their work. At that stage the patients gave no evidence of anxiety, but rather of a contemplative mood and actually expressed their intentions of returning to work. The length of this "pre-neurotic interval" varies according to the severity of physical injury. This phase has been described by Roussy and Lhermitte(12) as one of "incubation or contemplation." At that stage the psychiatrist is able to anticipate the probability of later development of anxiety if there is evidence of unresolved conflict between duty or self-respect and what the patient feels is self-preservation. The occurrence of delayed nightmares should draw attention to the patient's inability to solve his conflict on a conscious level and to the beginning of the post-traumatic neurosis.

In a number of head injury patients the nightmares occurred only after several months. This, for instance, was the case with a 53-year-old worker who had been run over by a car and, in addition to a concussion, had suffered a fractured leg, which kept him in a plaster cast for 6 months. For a great many years he had had an inner conflict between his occupation which he found monotonous and his feeling of duty to stay on the job for the sake of financial security. During the time of his illness he was in a somewhat pensive mood but apparently resolved to go back to work as soon as the condition of his leg permitted. Two weeks before returning to work he began to suffer from terrible nightmares and developed definite anxiety states. This condition has ever since made it impossible for him to do full time work. Such cases show that a final judgement about the patient's mental reaction to the injury can be made only after he has recovered physically. Such events also explain why patients with hysterical paralysis hardly ever exhibit anxiety states. Regardless of whether a paralysis is psychogenic or physiogenic, one is not expected to meet his obligations and, in particular, to do his work. It is known that anxiety states may develop if a hysterical paralysis has been made to disappear through

hypnosis, or other hysterical symptoms may be expected unless the underlying conflict is resolved.

It has occasionally been reported that after head trauma patients with additional disabling injuries are less likely to develop post-traumatic neuroses. This assumption has not been borne out by our statistics which gave evidence of only a negligible numerical difference (Table IV). This discrepancy of reports is probably caused by the delayed onset of anxiety states in some

TABLE IV

POST-TRAUMATIC NEUROSES IN PATIENTS WITH AND WITHOUT COMPLICATING INJURIES

	Total cases	Post-traumatic neuroses, percent
No complicating injuries.....	116	35
Complicating injuries	84	27

TABLE V

CORRELATION OF DURATION OF AMNESIA WITH INCIDENCE OF POST-TRAUMATIC NEUROSES

	Total cases	Post-traumatic neuroses, percent
Head injury patients		
Retrograde amnesia		
More than 1 minute.....	53	28
Less than 1 minute.....	147	32
Cocoanut Grove patients		
Amnesia		
Longer than 1 hour.....	16	19
Less than 5 minutes.....	28	75

patients with disabling injuries, which have thus escaped observation.

It was noticed (Table V) that victims of the Cocoanut Grove disaster, in whom carbon monoxide, other noxious fumes, or simple anoxia had caused blotting out of parts of the horrifying events by long lasting amnesias, were least likely to suffer psychiatric complications; the great majority of the patients who had remained conscious through all the horror, developed post-traumatic neuroses with fright reactions immediately following the event. On the other hand, variation of duration of retrograde amnesia covering all or none of the events leading to head injuries caused no notable difference of incidence of post-traumatic neuroses, the onset of which was delayed in almost all cases. Thus prolonged unconsciousness might prevent psychiatric complications following terrifying events, but not in those patients in whom unresolved conflicts were to form the basis of post-traumatic difficulties, as is the case in most neuroses following head injuries in civilians.

In a recent paper Symonds(14) discussed this difference between "fear neurosis" and "conflict neurosis," as he designated these conditions. Such a differentiation is advisable because prophylactic as well as therapeutic measures vary with each syndrome. Of course, circumstances may occasionally cause coexistence of both conditions. This happened in our series of head injury patients in 2 instances. If frightening events can be anticipated, as before combat or in places of repeated bombing, familiarization with the coming events and with measures for protection and first aid have proved advantageous(2, 3, 4) in allaying fear reactions, and rest and sedation prove to be the treatment of choice for acute anxiety states and for prevention of their perpetuation(9). Such treatment is not successful in "conflict neuroses." Promising results, however, have been reported from the armed forces where efforts to keep morale high were successful. In those units the incidence of post-traumatic neuroses was low(6, 11, 15) evidently since the conflict between duty and self-preservation was successfully bridged. A similar procedure ought to be successful in preventing the development of post-traumatic neuroses among civilians which as our statistics show, at present, can be expected in almost every third casualty with ensuing suffering and impairment of working ability. No large scale attempt has been made as yet to prevent the development of post-traumatic neuroses in civilians after everyday injury by early psychotherapy or mental hygiene.

The neuroses after head injury and after the Cocoanut Grove disaster were mainly anxiety states in previously well balanced personalities. In addition, a comparatively high percentage of patients with pre-existing neuroses had an exaggeration of symptoms after the injury. Headaches and dizziness, which persisted in almost all our patients with neuroses after head injury, were prac-

tically absent in the neuroses of the Cocoanut Grove fire victims. No post-traumatic hysteria was observed in any of our patients. There is, however, no justification for assuming that hysteria is a vanishing neurosis. During the same period of study several cases with *old* head injuries, which had not been hospitalized after injury, were observed to have hysteric hemiplegias, tremors and hemianesthesias. In addition, reports from the military forces reveal a frequent occurrence of frank hysteria(7, 13). The accumulated evidence indicates that at present hysteria hardly ever develops under the eyes of the physician but that we are usually faced with the fully developed condition(5). Our increase of medical knowledge has, therefore, so far succeeded in warding off hysteria through promotion of insight and understanding on the part of the patient(14). It is to be hoped that the large material on anxiety neuroses, which at present is being accumulated, may result in an equally satisfactory handling of such conditions in the future.

SUMMARY

1. The incidence of post-traumatic neuroses varies considerably since the development of psychogenic disturbance depends upon emotional factors related to the accident. Terrifying events, such as the Cocoanut Grove fire disaster, have a higher incidence of neuroses traceable to the circumstance of the accident than the everyday head injuries in civilians.

2. A differentiation can be made between "fear neurosis" and "conflict neurosis" as such conditions are designated by Symonds. The former are characterized by emotional disturbance and nightmares immediately following the accident, which recapitulate the circumstances of the injury. This type of neurosis developed in 54 percent of the victims of the Cocoanut Grove disaster, who had gone through a harrowing experience. The latter type occurred in about one-third of our series of head injury patients. Here, as a rule, the neurosis developed after an interval, at a time when the patients were physically fit to return to their duties. Nightmares were characteristic for these patients but they, too, occurred after an interval, usually during the first or second week after the patients had returned home and were faced with return to their former activities, which were charged with conflict. These conflicts were mainly related to financial, occupational or domestic difficulties.

3. No post-traumatic hysteria occurred in any of the Cocoanut Grove disaster patients or in any of the 200 cases with head injuries, all of whom had been hospitalized immediately following injury. It seems that, at present, hysteria hardly ever develops under the eyes of the physician but that we are usually faced with the fully developed condition.

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THE INCIDENCE OF NAIL-BITING AMONG ADULTS

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In an earlier study(3) the incidence of nail-biting among 2297 naval inductees was ascertained by the joint use of interrogation and observational procedures. At that time the prevalence of this habit was found to approximate 23 percent. No mention, however, was then made of the relative frequency at which this movement mannerism(2) occurred at respective age levels. The purpose of this note is to report data recently collected on this point. These have been obtained by recourse to an additional and consecutively examined sampling of 4649 white naval recruits. This procedure thus extends the incidence table (based upon children and adolescents between the ages of 3 and 17 years) provided by Wechsler(5) in 1931. It also increases the size of the total sampling from 2297 cases to 6946 and makes possible a redetermination, to a first approximation,[2] of the overall incidence of the nail-biting mannerism within the male population of military age.

RESULTS

The data collected permit the following statements of results.

First, in terms of the total number of cases observed (6946), the overall frequency of the nail-biting habit is approximately 21.5 percent. This percentage suggests that roughly one white male in five, between the ages of 17 and 37 [3] bites his nails. The applicability of this statement, however, to the entire age range is open to question as is revealed below.

Second, the frequency of the nail-biting mannerism for each age level, statistically arranged in one year intervals, has been ascertained for the sampling previously described. Table 1 incorporates the frequency-age findings that obtain from the study of

TABLE 1

THE INCIDENCE OF NAIL-BITING IN RELATION TO AGE IN YEARS [4]

Age	N	Nail-biters	Per-centage	Fig. 1 value [5]
Under 3	31	0	0	0
3	31	1	3.3	
4	40	10	20.0	
5	70	19	27.1	16.8
6	177	52	29.4	
7	153	55	35.9	
8	112	40	35.7	33.6
9	122	47	38.5	
10	127	43	33.9	
11	104	35	33.7	35.3
12	103	36	35.0	
13	110	48	43.6	
14	150	63	42.0	40.2
15	114	37	32.4	Wechsler data
16	68	19	27.9	
17	938	260	27.7	29.3
18	1321	319	24.1	
19	527	94	17.8	
20	260	54	20.8	20.9
21	143	19	13.2	
22	143	23	16.0	
23	105	16	15.2	14.8
24	96	10	10.4	
25	106	16	15.1	
26	121	17	14.0	13.2
27	115	14	12.2	
28	124	12	9.6	
29	111	13	11.7	11.2
30	120	14	11.6	
31	74	7	9.4	
32	78	5	6.4	9.1
33	75	9	12.0	
34	65	4	6.1	
35	48	5	10.4	9.5
36	44	4	9.1	
37	35	3	8.6	8.6

[1] The opinions and assertions herewith expressed are those of the author and are not to be construed as those of the Navy Department or of the naval service at large.

[2] This is true because an unknown number of draftees had been rejected for military service before naval induction. The frequency of nail-biting among this group is obviously unknown.

[3] The lower class interval is offered here. The number 37 means that a man was 37 years old his last birthday.

[4] The author expresses his appreciation to Wechsler for his permission to reprint his data published in The Psychoanalytic Review, 18: 201-209, 1931. Attention is called to the fact that the data given by Wechsler for the 17-year level (based upon 21 cases) have been deleted and those based upon the author's 938 cases substituted.

[5] See text for explanation.

4649 white males from American culture. It is to be noted that the frequencies offered through the 16 year level (Table 1) are those reported in 1931 [4] by Wechsler(5). The combination of these two sets of data is believed advisable even though collected at different times and places as well as by different observers. Frequency trends are accordingly more clearly revealed.

Table 1 reveals that, for the sampling studied, the frequency of nail-biting is greatest among those of the younger ages. The frequency in percentages appears to decrease

FIG. 1.—Incidence changes with age of the nail-biting mannerism. (This figure obtains when the average percentage for each three-year interval is plotted and when Wechsler's and the author's data are pooled.)

progressively from the ages of 15 and 16. Although the number of cases examined at the older age levels (30-37) steadily decreases, the data nevertheless show a secular trend that is consistent with the general decrement already apparent in the late teens and early twenties. Thus, with increasing age, fewer and fewer men are addicted to nail-biting. At the ages of 16, 17, and 18, to illustrate, approximately one male out of four reveals this habit. At 30, however, the ratio approaches one in nine. At 37, this index of incidence is nearly one in twelve.

The data [6] reported in Table 1, column 5 have been arranged in a frequency-age curve (Fig. 1). In so doing the statistical method of moving averages(4) has been used. The average in percentage of nail-biters for each three-year age-interval has been plotted in Fig. 1. Each point on the graph, therefore, is an average of the percentages for the appropriate three-year interval. The only exception to this rule is found within the 36-37 class where an interpolative process has been arbitrarily used to obtain an index consistent with the trend of the data and to complete the 36-37 age interval.

Inspection of Fig. 1 reveals a rapid increase in the frequency of the nail-biting attribute [7] during childhood and early adolescence. The age-interval at which the mannerism is most prevalent is between 12 and 14 years, that is, during the early teens. This early increment in frequency of nail-biting is one phase of the secular trend of the data when these are historically viewed. The period of increment, however, is shortly reversed and is replaced by a progressive decrement in incidence with increasing age. Indeed, the frequency is clearly on the downgrade by the late teens. This trend continues until the thirties when a fairly uniform frequency of less than 10 percent obtains.

DISCUSSION

The data presented thus far are definitive only. They merely reveal the incidence of one movement mannerism in relation to the ages of those examined. They do not account for the initiation of the habit, nor do they give any hint as to the explanation for the decrement in frequency with advancing age. In fact, any specific explanation of nail-biting *per se,* it seems clear, must be based upon an extensive study of each person so addicted. Only in this way can the meaning of the mannerism for the individual personality be determined. Although the 6946 cases observed in this and the earlier study have not been subjected to a detailed clinical analysis, 200 unselected examinees have been studied for longer periods than have the others. On the basis of these more detailed results a series of overall statements is

[6] In this statistical treatment of the two sets of data the writer takes full responsibility. Dr. Wechsler's interpretation of the nail-biting pattern might preclude the use of this approach.

[7] *Attribute* is used here in its statistical sense and refers to the discreteness of the distribution in Table 1, *i. e.,* a man either does or does not bite his nails.

offered in the form of a general, hypothetical interpretation of nail-biting.

As a result of the interviewing of nearly 7000 men between the ages of 17 and 37 and as a consequence of the more detailed study of unselected cases of nail-biting, it is obvious that the most outstanding finding is the diversification of factors responsible for the initiation of this behavior pattern. It follows that a multiple factor interpretation must be used when an overall explanation is sought. Any effort to superpose the early Freudian [8] interpretation of the genesis of psychosexuality to Fig. 1 is more concealing than it is revealing. This point of view is supported by the replies obtained from two groups of men, 100 of which did bite their nails, upon topics pertinent to the Freudian interpretation. No significant difference in marital status and heterosexual adjustment was discerned. Among those of the older age groups (21 to 37) social codes and customs have been found to play important rôles in the genesis of attitudes toward the mannerism. This factor serves as a frequent goad in motivating men to overcome a habit that is socially ridiculed and popularly though erroneously (3) assumed to be a forthright index of "nervousness." To assume that the decrement in frequency in the upper age ranges is the result of the attainment of heterosexual adjustment conceals the dynamic interplay of social and personal factors operative in the total situation as well as interpreting too narrowly a mannerism widely prevalent in society.

Any specific explanation of nail-biting will have to take into consideration the rôle of learning (including learning by imitation), the function of temporary or permanent frustration and conflict in personality development, and the factor of unconscious motivation in human adjustment. To illustrate one of these points, the frequency of nail-biting among older, blood-relatives of nail-biters is too high (25 to 30 percent) to be ignored. Indeed, men have spontaneously mentioned parents, older siblings, teachers and neighbors all of whom they as children "watched" in the process of nail-biting. Once the habit is well-established it is possible that the mannerism continues without the reinstatement of the original inciting situation by virtue of its possession of its own motivational mechanisms (1). Obviously, the number of situations inducing this mannerism is large. Economic, social, familial, sexual, and all other bases for conflict and frustration have provided, among the thousands interviewed, a fertile ground for the generation of tensions. Nail-biting, related undoubtedly in one sense to the proximity of hands to the mouth, is looked upon much in the same manner as excessive foot-tapping, head scratching and other expressive movements. They are all, from the present viewpoint, learned mechanisms unconsciously directed toward the reduction of tensions. Sexual frustrations and conflicts, broadly or narrowly defined, cannot alone, in terms of the findings revealed by the nail-biters examined in this study, be held responsible for the genesis of the mannerism.

A working hypothesis is accordingly postulated. It assumes that nail-biting is a tension-reducing mechanism; that it is usually acquired at a more or less unconscious motivational level; that learning by imitation via prestige suggestion can account for certain cases; that the habit once established may outlast the original inducing-situation and hence persist; that loss of class-membership, criticism and ridicule play important rôles in the control of the mannerism; that the resolution of personal difficulties helps many (not all) to eradicate the habit. In this latter connection, it is worth noting that numerous men admitted they once were persistent nail-biters, but that within the past few years they indulged only when under undue stress, strain or excitement. It follows from these general statements that several factors are involved in the acquisition of the mannerism. The implication is that the exact meaning of nail-biting remains the problem of the individual case and must be approached clinically.

In conclusion, the evidence clearly indicates that nail-biting alone is not an infallible index of psychopathological states. If one does speak diagnostically, and hence excludes all those nail-biters who fall within the normal range of personality, then nail-biting

[8] The frequency of nail-biting among psychosexual deviates has been found no higher than the frequencies reported in Table 1.

has been found in this study to be as prevalent among psychopathic personalities as it is among other personality deviations often and erroneously associated with the mannerism.

SUMMARY

A consecutive series of white naval recruits, consisting of 6946 men ranging in age from 17 through 37, was interrogated about and observed for the nail-biting mannerism. Of this group, tallies were kept for 4649 men in order to determine age-frequency characteristics. A group of 200 men were studied in more detail. One hundred of these were addicted to the habit. The following statements summarize the results that obtained.

1. Approximately 21.5 percent of the 6946 men were nail-biters.

2. The incidence-age curve for the nail-biting attribute reveals a secular trend when the data are viewed historically. A rapid increment in frequency from the age of 3 to the age of 15 (Wechsler data) exists. A gradual decrement from the age of 16 through 37 follows.

3. Evidence suggests that the application of the early Freudian theory of psychosexual development to these findings conceals more than it reveals.

4. A tentative, working hypothesis is suggested whereby the nail-biting mannerism is regarded as a tension-reducing mechanism acquired, for the most part, unconsciously.

5. The specific explanation for the habit rests upon the careful, clinical study of the individual personality. Only in this way can the dynamics of the mannerism be fully understood.

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FRATERNITY IN COMBAT

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WITH THE COLLABORATION OF LT. CMDR. T. W. RICHARDS (H.) S., U. S. N. R.

When the military psychiatrist reviews the experience of the individual patient, one of his most puzzling problems is to discover whether the behavior in combat was something new in the life history, or was—even though exaggerated—the extrapolation of an earlier well-established reaction pattern.

An unusual opportunity was recently afforded to observe the effect of war on 3 brothers serving in the U.S.M.C.R. The similarities and differences in their common pre-service family life and environment and their Marine Corps duty and combat experience, can be correlated with the clinical symptoms each developed. They reported together for active duty and after four years' service in the same company, were admitted together to the sick list on the same day.

The patients were the 6th, 9th and 10th of a family of 4 boys and 6 girls, a middle-class, mid-western, urban family, whose members were, by ordinary standards, average and inconspicuous. Part of the boys' early environment included their maternal grandparents; the grandfather was French-English, Protestant; the grandmother was Irish Catholic. The mother 57, was Catholic, and she reared all her children as such. At age 40, she had a thyroidectomy; is hypertensive; "little things have always bothered her"; she had been and remains a severe nail biter. She is a meticulous housekeeper. She has always handled the family's financial matters, and in general assumed the rôle of head of the household. The father was strict but devoted to his family, and an adequate provider. Due to his working from 4:00 p. m. to midnight as a stationary fireman, the patients, during childhood, saw relatively little of him except on week-ends. He was Protestant and less religious than their mother. A paternal aunt and uncle raised two of the patients' sisters; this uncle was particularly close to the family after the father's death in 1938, about one year before they enlisted in the Marine Corps.

DEVELOPMENTAL HISTORY

Date	M.	C.	R.
1915. Birth of sister. Birth of sister.	Non-traumatic instrumental birth into family of 4 sisters and 1 brother (brother Sam 1½ years his senior).		
1921.		Non-traumatic instrumental birth into family of 6 sisters and 2 brothers.	
1923.	Close emotionally to mother.		Non-traumatic instrumental birth into family of 6 sisters and 3 brothers.
1924. Maternal grandparents moved in with family. Favored C.			
1925.	Began chewing nails (10).	Closer to grandfather than were the other 2.	Several unexplained generalized convulsions (2, 3).

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
1927. Grandparents moved out. Mother had thyroidectomy; ill for 10 mos.	Hospitalized with pleural effusion 4 mos.; out of school 10 mos.; tuberculosis, never proved (12).	Little to do with brothers emotionally. Began to walk in sleep.	
1928. Grandparents moved in again.	Began masturbation (13).	Rheumatic fever (7). Missed ½ year of school.	
1929.	Began stammering (14).	Close emotionally to grandparents.	More closely attached emotionally to father than to mother.
1931. Maternal grandparents' death.	Strongly affected.	Most strongly affected (10).	Strongly affected.
1931.	Sex misinformation by father. Guilt feelings (16).	Somnambulism to age 12, when nail biting began.	
1932.	Dates with girls; first heterosexual experience (17). Narrow escape from drowning; anxiety for 2 mos. (17).	Quick temper.	
1933.		Masturbation began (12).	Began chewing nails (10).
1934.	Minor injuries in auto accident; "nervous" for 3 mos. (19). Quit high school in 12th grade (19). CCC—6 mos.		Serious febrile illness lasting 4 mos. (11).
1935.	Sheet-metal helper. Became more attached to father (20).	Began stammering (14).	
1936. Marriage of 2 sisters.	Pleurisy for few days (21).	Stammering disappeared (15).	
1937. Father began cardiac treatment.	Uncomplicated appendectomy; "jumpy" for 2 mos.; did not work for 4 mos.	Sex misinformation by 2 older brothers. Stopped masturbation suddenly, due to guilt feelings over practice.	
1938. Sudden death of father, age 56. Paternal uncle became father substitute.	Strongly affected (23). Met girl he plans to marry "eventually" (still single after 7 yrs.).	Strongly affected (17). First heterosexual experience. Quit high school in 12th grade "because I got fed up with it."	Strongly affected (15). More closely attached to C. than to M.
1938. Four brothers began to form definite group under leadership of Sam, oldest brother.	Most attached to Sam, but began to notice C. and R. more.	Began to join activities of older brothers.	Joined activities of 3 older brothers.

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
1939.			Sex misinformation by Sam. First heterosexual experience (16).
8-15-39.	Enlisted in U. S. M. C. R. "Thought war was coming and wanted to be prepared" (24).		
9-18-39.		Enlisted in U. S. M. C. R., "because the rest were getting in" (19).	
4-23-40.			Enlisted in U. S. M. C. R., "because brothers were in and thought it would be a lot of fun" (17). Schooling interrupted in 12th grade.

Summary of personality development up to call to active duty shows that the 4 brothers had formed a compact group with the oldest brother, Sam, as leader. Sam had failed his Marine Corps physical examination, and on leaving their home environment, M., as the oldest of the 3, assumed the rôle of leader. The 3 brothers were closely attached to one another, but in this constellation, the younger boys, C. and R., were closer emotionally than either was to M. M. had, by stammering, restlessness and nail biting, already displayed evidence of neurotic adaptation. C. (age 19) had shown somnambulism, transitory stammering and continued nail biting. R. (age 17) appeared least neurotic, but there was evidence of maternal rejection. He had bitten his nails, revealed a quick temper and restlessness.

SERVICE LIFE

Date	M.	C.	R.
11-7-40.	To active duty in U.S.M.C.R., at San Diego, California.		
4- -41.	Made Pfc.		
5-30-41.	Formed with 6th Marines. Same company, different platoons. To Iceland. Uneventful, monotonous duty.		
2-11-42.	Return from Iceland. Fifteen-day leave at home together. To San Diego, California.		
3- -42.		Made Pfc.	Made Pfc.
6- -42.	Made Cpl.		
7- -42.	To British Samoa; 12 mos. of arduous training for combat.		
7- -43.	To American Samoa; 6 mos. additional training.		
8- -43.		Made Cpl.	
11-10-43.	To Hawaii, further training in desert warfare for 1½ mos.		
12- -43.			Made Cpl.
2-18-44. Assault landing in Marshall Islands.	*Fifth Wave* In charge of mortar squad.	*First Wave* In charge of machine gun squad.	*First Wave* In charge of machine gun squad.
	All felt as if this were just another practice landing.		In combat 24 hrs.; small island secured.
	Squad remained intact.	Grenade rolled into hole of gun emplacement. Two men of squad were killed: another had "whole leg blown off." C. administered first aid; felt responsibility keenly. Unable to evacuate man for 8½ hrs.; eventually recovered. C. acutely anxious following this episode.	Two of squad shot on beach in making landing. Patient unaware of these casualties until making gun emplacement.

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
2-19-44.	On return to ship, all felt equally acutely anxious.		
2-22-44.	Second assault landing on another island in the Marshalls; same squads with replacements. Reactions to landing much different than first; all acutely anxious.		
	Sixth Wave With rifle squad as protection for artillery.	*First Wave* With machine gun squad. Sent back one of squad because of "nervousness."	*Second Wave* With machine gun squad. Involuntary voiding once on beach.
2-24-44.	Increasing anxiety for 2 days. Island secured; removed to another secured atoll.		
	Some sleep, battle dreams.	Awake entire night due to continued fear.	Awake entire night due to continued fear.
	Acute tension and anxiety diminished gradually over period of 1 mo. Saw one another each 2 or 3 days.		
4-5-44.	To Guadalcanal for training period.		
6-10-44.	Transferred to Marshall Islands where they were placed on different LST's. All stood by as reserves during *Saipan Invasion.*		
6-19-44.		LST bombed, not hit.	LST bombed, not hit.
6-22-44.	Return to Marshalls.		
7-21-44.	*Guam Invasion:* original squads with replacements.		
	Voided repeatedly on LST: vomited twice.	Defecation 6 times immediately prior to disembarkation.	Voided voluntarily 10 times in 1½ hrs.
	Sixth Wave (20 minutes after first wave). Mortar squad.	*First Wave* Machine gun squad.	*Second Wave* Machine gun squad.
	Moderate diarrhea first 15 days (cause unknown).	Minor shrapnel wounds, right arm and leg, 3 hrs. after landing. Anxious, but glad he had been hit. Dressed by corpsman; kept with squad for security 3 more hrs. Evacuated 6 hrs. after landing; then began worrying about brothers' safety; became more acutely anxious due to lack of news about them.	Continuous front-line combat.
	Located usually 300 to 400 yds. behind front lines; more subject to artillery fire; less subject to small arms fire.		Diarrhea for 30 days. (Cause unknown).
7-23-44.	One of the squad evacuated "because he could not take it."		Voided involuntarily 3 times.
7-24-44.	Heard that C. was hit; worried considerably.	Put in request with group of 50 to return to combat; request refused. Moderate guilt feelings.	Mortar shell burst, dazing whole squad. Patient blown by blast from prone to supine position. One of squad evacuated due to shrapnel wound.
			Heard that C. was hit; worried, but too busy to think much of it at this time. Another man of squad seriously wounded in head: evacuated.

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
7-24-44.			(This man had been unreliable in combat, necessitating additional loss of sleep by patient; consequently some relief at his being evacuated. Some guilt reaction later when learning that his wound was serious). Became "very shaky"; many of friends "had got it."
7-26-44.			Went "completely off his nut" for a 30 minute amnesic period, requiring restraint by other men. This episode followed 6 hrs. of particularly severe combat and was apparently precipitated by hearing that a close buddy was missing.
7-26-44.	Whole company relieved, "because out of original 160 men, only 50 remained."		
7-27-44.	Held in reserve for one day, then returned to front lines.		
7-28-44.	Another of squad evacuated because of "dysentery."	Lull in fighting.	
7-29-44.		Severe combat again for 3 days.	
8-1-44.	Whole company relieved; given 3 days' rest 5 miles behind front lines.		
	Heard that C.'s wounds were not serious. Anxiety steadily increasing.		Heard that C.s wounds were not serious. Anxiety steadily increasing.
8-4-44.	Return to front lines; reorganization.		Given new squad.
8-9-44.	After 5 more days of front-line combat, island was secured. Brief contact between M. and R. every 2 or 3 days.		
8-10-44.	Twelve days of "mopping-up" operations; patrols twice daily. Scuttlebutt to the effect that they would have to participate in invasion of another island soon. As a result, both seriously considered stealing food and deserting to hills.		
8-11-44.		Evacuated to Guadalcanal.	Three of original squad of 6 were turned in for "nervousness."
8-15-44.	Anxiety symptoms becoming increasingly severe; insomnia, irritability; battle dreams, fatigability, hyperhidrosis, tremors.	To duty at Guadalcanal. Wounds healed. Anxiety symptoms interfered with duty; insomnia, irritability, forgetfulness, hyperhidrosis, tremors, occasional dizzy spells and headaches. No battle dreams or nocturnal anxiety, but frequent unexplained awakening.	Increasing anxiety revealed by severe insomnia, irritability, battle dreams, fatigability, hyperhidrosis, startle reaction and tremors.

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
9-15-44. News of uncle's death.	Believes he was more affected than 2 brothers.	Strongly affected.	Strongly affected.
9-25-44.	Three patients discussed nervous symptoms together; all concurred in decision to seek medical aid for anxiety.		
9-30-44.	Went to sick bay; told to stand by.		
10-2-44.			To sick bay; told to stand by.
10-4-44.		To sick bay; told to stand by.	
10-20-44.	Admitted to the sick list in the field, transferred same day to U. S. Fleet Hospital No. —. Symptoms enumerated on 8-15-44 present to about same degree, all three presenting predominantly the picture of anxiety. R's was the most intense anxiety, C's the least intense.		
11-22-44.		Arrival in the U. S. A.	
	M., a dark-haired, stocky, sober young man, appeared somewhat defensive and apprehensive. He endeavored to present himself in as favorable light as possible, holding to stereotyped answers rather than allowing himself emotional release. He was slightly tremulous, tense and stammered. He picked at his nails and frequently rubbed his hands together.	C. was a tall, thin, dark-haired young man with a ready smile, happy, but apprehensive in initial interview. His anxiety was revealed in restless movements in his chair. He occasionally commented but was generally willing to remain in the background in the presence of his older brother, M.	R. was a tall, very thin, blonde boy, apprehensive, resentful and hostile on initial interview. Of the 3, he was obviously the most tense. He constantly rocked his legs, chewed his nails and rubbed his hands together. It was an effort for him to remain seated. He did not rely altogether on formalized responses, as did M, but was much more excitable and spontaneous in expression.
11-22-44.	Of the 3 boys, he was obviously the spokesman. He was the most serious of the group. M. mixed fairly well on the ward but preferred to remain with his brothers. He was restless, but able to control his anxiety better than R. He was not jovial, but neither did he suffer from any marked irritability. Complained of nervousness, anorexia, nightmares, cramps in feet and legs. Unhappy in service; believed he and brothers were "shoved around."	His comments were generally more spontaneous and less stereotyped when they occurred. More at ease socially than the other boys. On the ward, he was quiet, but pleasant and reasonably cooperative. He was tense, but sociable with other patients. Complained of easy fatigue, insomnia, anorexia and restlessness. Reported considerable improvement during several weeks just past. (Least anxious of 3.)	About the ward he was restless and irritable. He was obviously concerned about this and attempted to control himself and socialize. Complained of insomnia, fatigue and nervousness.
	Neurological and laboratory examinations were essentially normal.		
	Height ..... 69½ Weight .... 140 Usual wt. .. 172	Height ..... 71½ Weight .... 138 Usual wt. .. 180	Height ..... 72½ Weight .... 134 Usual wt. .. 165

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
Electroencephalogram.*	No dysrhythmia. Higher potential on right side of cortex.	Resting record poorest in form of 3. The implications of this are not clear. Late in hyperventilation 3/sec. paroxysmal high voltage waves were seen. This is considered within the minimal range of convulsive susceptibility.	Resting record of good quality. A few bursts of 5/sec. high voltage activity late in hyperventilation. This is considered a borderline record.
12-15-44. Reaction to therapeutic combat motion picture.	"The picture made me more jumpy." After seeing the picture, he was observed to exhibit increased startle pattern, insomnia and dreams of combat.	"It showed you what you had to do to bring your men through." Symptoms not apparently affected.	"It brings back too much." Followed by increased startle reaction, insomnia and dreams of combat.
1-8-45. Rorschach responses. No. I.	(5″) Looks something like a bird—like—bat.	(25″) Looks something like the wings of a bird.	(4″) To me it looks like —like a bat—Bat's wings, and its—that's what it looks like to me.
II.	(10″) Looks like some kind of a part of the body—like the rear end.	(Reject at 65″) I don't know what that is—I don't know.	(30″) Well, it looks like two bears to me (changes later to "animal").
III.	(8″) Something like the lips and mouth.	(30″) Looks like 2 men over a fireplace; 2 people over a fireplace ("cooking") (Then "don't have to be men").	(20″) This—a bunch of islands there.
IV.	(Reject at 40″). I don't know that—what it looks like—Looks a little bit like the first one, but I wouldn't know.	(50″) It kind'a represents a bearskin or something (same texture).	(14″) Looks like one of those lions—just its fur.
V.	(15″) Looks something like a—like a moth of some kind.	(20″) That there looks like a bird—one of those bats—it might —.	(11″) this thing here looks more like a bat to me—more than the other one does.
VI.	(50″) I don't know what this represents—wouldn't know—sharp piece of coral, but I'm not sure what it looks like (jagged edges) (very anxious).	(Reject at 60″) I don't know.	(20″) Coral, to me (jagged edges)
VII.	(15″) Looks to me like a bunch of islands (laughs).	(55″) It could represent some small islands.	(15″) a bunch of small islands.
VIII.	(40″) I don't know what that—looks like a couple of animals over here.	(50″) It could be some kind of animal climbing a tree there—rocks down below.	(20″) Like 2 animals trying to get to the top of the tree there—climbing a tree.

* Made and reported by J. A. Rose, Lt. (M. C.) U. S. N. R.

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
IX.	(Reject at 50″) (shakes head) I don't know what that represents—.	(70″) Looks something like mountains (and waterfall, here, coming down).	(25″) That's got me, there, that could look like a lake, part of it, but I wouldn't know what the rest of it is (like a boy).
X.	(Reject at 40″) I don't know what that represents ("just a bunch of color"). After examination, asks suddenly why he has to have these tests.	(10″) Roots of a tree (grey and pink details).	(20″) Well, to me it looks like animals of small species (top grey gophers; blue—octopus).
1-8-45. Rorschach.	This record is noticeable for the combination of repression with evasiveness and defensiveness; it reveals both color and shading shock. This man is strongly aware of his inadequacy, both socially and when left to his own resources. The crude emotional aspects of the environment are of immediate significance to him, and it is suggested (in his responses to II and III and his anxious response on IV) that homosexual values may be of particular significance. The record reveals, otherwise, an individual who, in handling neutral potentials in his environment, is intellectually dull and stereotyped. The dominant impression is of a personality who is tortured by his own inadequacy.	This patient's record reveals that he is extremely sensitive to crude shocks from the environment, and that while these throw him decidedly off balance, he possesses considerable resiliency, and reorients himself well. Not only do environmental implications shock him, but at times his own impulsiveness is also upsetting to him. He is a warmly sensitive and responsive person, whose basic urges demand some expression, even if later he may regret this expression. Impulses within tend to render him thoughtful and introspective. Sexual anxiety is suggested in rejection of both II and VI, and it is probable that this anxiety is related to conflicts fairly close to the surface (such as frustration of heterosexual expression).	The picture revealed by this patient's record is that of the insecure adult who falls back on childish means of responses in the face of insecurity. The record reveals a refuge in the most obvious features of the environment (form). Hence, the patient appears to restrain himself in expression. When he allows himself expression, he appears more confident in engaging himself socially than in dealing with his inner impulses. The presence of color shock reveals a neurotic tendency which (together with his high F%) seems to be hysterical (rather than compulsive). He is an impetuous, childish adult who, by himself, tends to be anxious and uncertain and who has, therefore, sought in social relationships some reassurance to his ego; in this he has not been too successful.

Comparison of the Rorschach records of the 3 boys reveals considerable similarity: their responses to the 1st, 5th and 7th cards were almost identical: each first gave as his response to VIII the animal response. They all demonstrated color shock on card II; each of them revealed anxiety on VI, a figure, for many individuals, sexually provocative.

Each of the 3 boys revealed, however, a definite individuality:

M.'s hysterical tendency (possibly in close association with sexual anxiety) was revealed in his responses to II and III. His incapacitation under conditions of even minimal social pressure was revealed in his rejections of IX and X. M.'s inadequacy socially is revealed repeatedly throughout his record.

In C.'s rejection of II and his recovery on III (to give the good human movement response), we detect evidence of a resiliency which his brothers lack. Unlike his brothers, C. rejected VI, suggesting that under conditions of sexual challenge he "freezes." Like R., C. revealed (in his texture response to IV and his movement response to VIII) a sensuality and freedom of earthy expression which M. fails to reveal. C.'s response to IX reveals an introspectiveness which is totally lacking in M. or R.

R.'s record reveals anxiety not only in his crude repression, but in his feeble attempt to make his anxiety appear reasonable, to "make an impression" (as in his map responses on III, VII and IX). His is the most childlike of the 3 records—he shares with C. a sensual and primitive expression, but unlike C., he is incapable of recovering completely his spontaneity. R. is still cautious of a misstep socially, so he attempts a rationalization of his inadequacy and anxiety. C. is more severely shocked, but recovering, he recovers more or less completely: R., on the other hand, still is wary and cautious—eager to know how he is "going across."

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
1-10-45. Thematic Apperception Test.	It is apparent, psychologically, that feelings of guilt are of cardinal significance. In one story, the hero is a suicide: in another, his "wrongness" is salient; in another he is "broodin'." It is very interesting that for two pictures in which the hero is with men only (7 BM and 9 BM), the depressed tone is absent; the boy and his father are happy, and the bum lies down to rest with his fellow hoboes. It is in situations with women that we find the brooding and sadness.	Not only is the hero "trying to" do things, but others "try to" do things to him. In one story the hero is kissing a woman, though there is little in the picture to suggest a human figure other than the hero. In another picture (in which other than the hero, only a pair of hands is visible) the patient sees a woman behind the hero—about to kill him or choke him. These stories suggest that violence of heterosexual relationships, and their consequent frustration, is of real psychological significance.	The hero is found to be often passive in his dealings with others, and usually misunderstood, mistreated, introspective, depressed and even confused; he is hence usually in a situation of suspended frustration. Others love the hero, but they extend to him no real security: theirs is a love stylized and stereotyped.

The thematic apperception stories show very clear similarities and differences between the 3 brothers. Interesting likenesses appear in their mutual reference to prayers (on 12 M) and to fatherly advice (on 7 BM). They differed sharply on 3 BM, in which M. saw a suicide (depression borne out in his morbidity in other stories), C. saw an activity frankly sexual and R. saw a person grieving because he had lost a buddy. M.'s moodiness and sense of guilt, C.'s passive heterosexuality and R.'s essential insecurity and need of love are consistent individual themes.

Otis Mental Ability.	Mental age .... 11.4 I. Q. 79	Mental age .... 12.8 I. Q. 86	Mental age .... 12.5 I. Q. 85
Minnesota Multiphasic Personality Inventory.	Scores for *hypochondriasis* and *hysteria* were exaggerated. Examination of items suggests *sexual anxiety, repressed hostility* and *aggression.*	The patient revealed no unusual quantitative deviations. Examination of items suggests slight *compulsive* trend, *loneliness* and *pre-occupation.*	Scores were exaggerated for *hypochondriasis, hysteria* and *depression.* Examination of items suggests importance of *childhood insecurity.*

All the boys have in common a substantial matrix for psychopathology, in which the most prominent common share is *hypochrondiasis* and *hysteria.* Each boy shares something in common with each of his brothers to the exclusion of the other. M. and R. share a greater degree of the familial somatic psychoneurotic tendency; while C. differs in his unique (though normal) personal elaboration in the direction of psychasthenia. Hysterical R. and individualistic C. show, however (in distinction from M.), a certain boisterous expressiveness in the direction of hypomania—possibly because they lack M.'s sobering years.

DEVELOPMENTAL HISTORY—CONTINUED

Date	M.	C.	R.
Summary of differences revealed by psychological tests.	C. is brighter and more individualistic, and, to the stress of combat, reacted more autonomously than did his brothers. His psychopathology is older, more fixed, more autistic than that of his siblings. R. was hysterical, and fell back on infantile methods of obtaining attention and security and of justifying his incapacity. M., the eldest, reacted in terms of a long-standing propensity to anxiety and hysteria; long-standing sexual conflicts (not too clear), seem to be significant in M's case and to contribute to his unique, repressive form of neurotic solution.		
1-29-45. Clinical impression.	Patient seemed a little less anxious than when seen previously (11-22-44); more sober, quiet, a little morose. Stammer was more noticeable particularly in referring to duty status). Became almost inarticulate at times. Much difficulty in expressing himself; kept referring, almost in an obsessive way, to the fact that he knew he would never be able to take any more overseas duty. Stated that this was almost always in his conscious thinking. *Impression:* Saw no improvement, and wondered if his neurosis was not actually a little more fixed. No gain in weight.	Apparently gradual improvement noted on admission had continued. Seemed a little more carefree, more at ease. More concerned now about what he would do when he got out of service, not (like M) whether or not he would get out. Almost only complaint now was restlessness—not knowing what to do with hands, inability to sit still. Described same reaction to food as did M: being hungry, going to chow, odor (or something) taking away appetite. Gained 10 lbs. (which he ascribed to larger liquor consumption). All agreed that larger liquor intake was for purpose of allaying their anxiety, a definite escape from unpleasant every-day anxious existence.	This patient was a little more tense, anxious, apprehensive than 2 mos. previously. During this time, he had noted a steady increase in depressive tendencies. Mental content consisted much more of past combat experiences, less of the future. No particular incident but "those tough 11 days." Number and severity of combat dreams was again increasing, as was diurnal subjective anxiety. Believed he and his brothers were getting worse, and as confirmation, quoted some mutual friends whom they saw 2 days ago. Exactly same present reaction to food as brothers; no gain in weight. Related some of his anxiety to the inactivity of hospitalization.
3-14-45. Clinical impression.	M. is now cheerful, smiling and more spontaneous in his speech. He stammers as severely as on entry, but is generally much less tense, anxious and apprehensive. His neurosis seems almost to have returned to its pre-enlistment status.	C. has gained weight and no longer appears thin. He reveals no evidence of anxiety and is unusually cheerful and happy. There is little subjective or objective evidence of an anxiety reaction at this time, except for his dependence on his brothers for essential security.	R. is cheerful and pleasant, but evidence of anxiety, although subsided to some extent, is still present. Still thin and restless, he is constantly in movement as he sits during interview and complains of subjective anxiety and irritability. This is much better than on entry, but it is obvious that moderately severe anxiety is still present.

SUMMARY

On admission to the sick list, 3 brothers presented the picture of an anxiety reaction. Their symptoms were similar, but varied in intensity. The opportunity to observe a reaction so common in wartime in individuals with very much the same protoplasmic possibilities and environmental background, seemed unique.

Upon study, it is seen that the brothers illustrate three types of neurotic disability seen frequently in this war. It would appear that their common symptom, anxiety, stems from their common inheritance and background. The individual course and prognosis of that anxiety would likewise seem to depend on personal differences which are somewhat less apparent.

I. M. had already displayed symptoms of emotional maladjustment during childhood, adolescence and adulthood prior to service. His combat experience in 3 invasions was severe, but somewhat less so than that of his brothers. Anxiety symptoms reached severe proportions rather rapidly. His old neurotic pattern was revealed in the Rorschach, Minnesota and Thematic Apperception tests. During the treatment period of several months, he responded slowly but definitely, retaining his anxiety longer than C., but releasing it more rapidly than R. He now (3-14-45) reveals only a slight increase over his pre-enlistment anxiety. His combat experiences have only colored to some extent an otherwise drab, neurotic personality.

II. C., during childhood and adolescence, had been somnambulistic, stammered, chewed his nails, and been quick tempered. On enlistment, however, no neurotic symptoms had been apparent for several years. His anxiety had increased along with that of his brothers, until his fortunate (?) wounding by shrapnel, which removed him from almost the entire Guam campaign. Projective tests confirmed the impression that he was the least neurotic of the 3. Under treatment, he responded rapidly and in a few weeks his anxiety was dispelled.

III. Prior to service, R. had demonstrated the least evidence of neurotic reaction. There was suggestion of maternal rejection, however, and he stated that he was "rather quick-tempered," and had been a nail biter since age 10. He experienced the most severe combat and displayed the most marked anxiety. A temporary solution to his unbearable anxiety took the form of an amnesic episode, probably hysterical in nature. After treatment over a period of 4 months, moderate anxiety persists. His outlook for the future remains a matter for conjecture; Rorschach and Minnesota performance suggest the potentiality of its developing into a more fixed neurosis.

COMMENT

The significance of this body of data, relative to the life and experiences of 3 brothers in the Marine Corps, would seem to depend on the degree to which each of the boys, as an individual, is representative of Marine Corps personnel as a whole. They finished at least 3 years of high school; their mental age of about 12 is probably not appreciably different from that of the average corporal with 4 years' service. On the surface, their adjustment prior to service was certainly average; there was a strong attachment to the home, an early interest in serving their country, and no evidence of delinquency; upon cursory inspection they would appear to be unremarkable members of an average American family.

In certain significant ways, however, the personality potential these boys brought with them into service is different from that of the average American boy. The neurotically inadequate affective influence of their mother was poorly supplemented by that of her husband, a rather distant father figure of little positive emotional importance to his sons. The effective ego is largely formed by identification. M. patterned himself largely after his neurotic mother; C. came to be influenced early by his more stable maternal grandparents; R. had little choice but to imitate his older brothers, Sam and M.

The compact group formed by the 4 brothers before enlistment suggests that they had already found strength in unity. In enlisting in the Marine Corps they felt a need to belong to the same group, to retain some part of the personal interaction of the family. In his relationship to Sam, M. was follower,

not leader. M. had demonstrated more neurotic instability than his 2 brothers, but immediately on enlistment, due to his seniority, he assumed leadership in the group of 3. The youngest boy, R. felt the greatest dependence on the group—not only the group of brothers, but the groups, also, of which he was a member in the Marine organization. If we could think of a group ego which the brothers found necessary over and above their individuality, we would feel that this was most vital to R. and to M., while to C., though it undoubtedly helped, it was less significant than was his own responsibility toward it under combat stress. R. was greatly upset by disaster to his comrades (amnesic episode), but C. was more concerned about his ability to lead his men and to give them first aid; thus, C. possessed the greater individuality. Although each of the boys had been aware of increasing anxiety, this did not become incapacitating until the effective force of the fraternal ego was lost with C.'s wounding and consequent separation from the group. The larger group ego of the Marine Corps itself undoubtedly played an important rôle in maintaining these boys as it does others, through days of unbelievably severe stress. It is interesting that 2 of these boys, who (with their brother C.) had revealed so much sense of duty, upon hearing of C.'s injury, then considered an act so incompatible with their previous philosophy as desertion to the hills together. It would seem that the injury to the group ego eventuated not only in the loss of character and conscience in the remaining boys, but an exaggerated refuge in what was left of the fraternal bond.

Rejoined later, away from the combat area, it was not until they heard news of the death of their uncle (who had in great measure replaced the father), that the 3 called a council and considered reporting *together,* for consideration of their anxiety. It is significant that the actual reporting to sick bay was staggered: M. the leader, went first; R., the most anxious, reported next, and C., the individualist, reported last. We were able to observe on the wards later that in matters of family council, though the ideas might originate with C. or R., it was M. who represented the group afterward in any official capacity.

That the family similarity is something carried over from their civilian days is suggested in the fact that each showed, in combat stress, an exaggerated incontinence. It is notable also that later in their fantasy each of the boys reveals the significance to his personality of family life which is stylized and formal, respectable and commendable. Most suggestive, however, is the demonstration of the unusual significance of brotherhood. These boys endured intense and terrific combat, reacting emotionally in ways so disastrous that, without this added security, we believe they would have been incapacited as individuals much earlier.

We feel that it is of considerable import, that in the youngest boy, R., who seemed most dependent on the unique fraternal bond, there was apparent also a greater dependence on comradeship with men in his unit. We feel that a significant inference might further be made: the tremendous significance of bonds between men in battle is revealed particularly by these boys, but the psychology is the same as that for the *esprit de corps* which good troops everywhere find so valuable. In the case of these 3 boys, with the added factor of brotherhood, it is not by accident, we believe, that they enlisted as Marines, an organization with a long tradition of morale. Possibly the fraternity they knew so keenly seemed best represented by what they knew of Marine Corps tradition, and it is possible also that this tradition developed actually from the need which Marines have felt so necessary under stress.

THE YOUNG DELINQUENT

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Reference is frequently made in Britain's press to the recent increase in delinquency among children and young people. These references are presumably based on figures given by the Children's Branch of the Home Office, representing children and young people who are charged in petty sessional courts. How far do these figures represent the actual numbers of young offenders among the population? How far do the Home Office figures represent the real increase in delinquency?

There are at least three possible sources of error in interpreting the figures:

1. Not all children charged are of the true delinquent type; some of them are merely mischievous or high-spirited children whose misdemeanors catch the eye of the police or of neighbors.

2. Not all delinquent children are charged. On occasions the matter may be dealt with in consultation with the headmaster, the family doctor and perhaps a psychiatrist.

3. There may have been recently a greater readiness to charge children, since the juvenile court has tended to assume the character of a social agency. In the London area the very general adoption of the probation system in lieu of any form of penalty, may have increased this readiness to charge children.

But whether England's delinquent children be few or many we are faced with the question: In what ways and to what extent do delinquent children differ from other children and how and to what extent do they need separate provision? It is proposed to consider here, briefly the needs of delinquent children in the matter of their social education (apart from schooling) and provision made for their leisure.

Delinquency is often thought of as predominantly a social problem and the delinquent as an individual unwilling or unable to adapt to society. Delinquency is always and by definition social in its effects, but not always social in origin. In a large number of the simpler cases of delinquency, the causative factors appear to be environmental and to that extent socially determined. Children who suffer the deprivations of extreme poverty, children of low intelligence lacking proper educational facilities, children returned from country evacuation to the restriction of closely built-up areas—such children may break down under the strain, and may react by stealing, by truancy or by acts of wilful damage. Provision for leisure is important for such children. A club or play center may help to avert the catastrophe of the breakdown, and where the breakdown has occurred, it may aid in restoring self-respect and hope.

But it should be remembered that the child who is suffering from the shock of his own delinquency, as well as from the shock of its consequences, may be a very sick child and may need careful nursing back to health. Children who have been in the hands of the law—however kind the magistrates and the officers of the court may be—must be treated as post-operation cases. If they have not so far been members of a club, they may well hesitate at such a moment to take up membership, which will entail the difficult experience of meeting many new people, children and adults. A probation officer who is advised by a magistrate to arrange for a new probationer to join a club, may wish to delay this step for a while. Some delinquent children may be especially alarmed at meeting other children, and when they first join a club may find it easier to form relationships with adults than with their contemporaries.

Rex, who was thirteen, had been brought before a juvenile court on a charge of stealing from a grocer's shop. He lived with aged foster-parents; the mother was seventy-seven and the father was eighty-four. This London family had lost their home through bombing, and for months had lived in air-raid shelters and rest centers. When at last they found permanent living quarters in a neighborhood unknown to them, the boy found it hard to face going to a new school—"They don't know me there." A club he could not face, although the leader did his utmost to make it easy for him to

slip in, in an unceremonious way. The attempt to get him to join was given up.

Dickie, who was ten, was charged with robbing a church. For some weeks, while his mother had been ill in bed, Dickie had been doing the work of the house, attending school in the day, and attempting to sit up at night with the sick woman. When one evening he broke loose from home and went out with a friend the offence occurred. Dickie and his friend were keen members of the Sea Scouts and their membership was not allowed to lapse.

Both Rex and Dickie were normal boys on whom circumstances had pressed too hardly. Their rehabilitation seems assured.

In other cases of delinquency the causative factors are psychological rather than social; that is, the cause lies within the inner life of the child, or within the sphere of his few intimate relationships. Stealing, acts of violence, and sexual misdemeanors among children are frequently psychogenic, especially when they occur in children of good character. Such manifestations do not in fact indicate anti-social character traits, and direct measures of socialization, such as persuasion or appeals for co-operation, admonition or the withholding of privileges, will be ineffective because they are not related to the cause of the offending behavior.

Parents and teachers often remark on this feature of psychologically determined delinquent behaviour: "Nothing that I do seems to make any difference." The remark is generally made in the form of a charge or complaint against the child, but if it is made and recognized as a single statement of the fact that the behavior is resistant to all ordinary measures, it can form the starting point for useful investigation.

Cases such as these may yield to some form of psychotherapy. But there is one valuable service which can be rendered by the school, club and play center to the delinquent type; they can give him the sense of being accepted by others as of worth even while his difficulties are not understood.

Philip had personal difficulties which could not at once be recognized. When he was eight, his father left his mother. The man, who was brutal and indifferent, had often ill-treated his wife in the presence of the boy. After the break the woman had a nervous illness, but recovered and married a kindly, dependable man, who played the part of a good husband to her and a good father to Philip. Soon after the second marriage, when Philip was eleven, he was found by the police kicking in the ground-floor windows of a building which housed one of the national art collections. The offence was repeated three times.

It was found on psychological examination that Philip, as a much younger boy, had identified himself with his big manly father; he had been painfully disillusioned, but clung to his earlier satisfying image of his father. The boy's distress was increased when he found himself in the relationship of son to a stepfather whose goodness was a constant challenge to the memory of his own worthless father. Under the strain of conflicting feelings, Philip broke down into a series of delinquent acts. The delinquency occurred when to outward appearances Philip's home life seemed to have taken a turn for the better.

It remains now to consider the few offenders—and they are really few among children and adolescents—who are really anti-social. It is natural that we should love society when it is kind to us, and hate it when it is cruel. Most children may readily be won over from hate to love by sympathy and understanding, but there are some in whom the capacity for warm, positive feeling seems to be absent; the power of love seems to have died in them. These are the serious cases, difficult to help.

The aim in treatment will be to arouse in the child the apparently lost power of forming attachments. He will need to begin, as the infant begins, by forming some strong, elemental bond of feeling for some one person, and at first in this relationship he will ask everything and give very little. From this simple kind of positive feeling, he will have a long way to go before he is capable of forming such a complex sentiment as loyalty to a group. The older he is when the new course is embarked on, the longer will be the road from the infantile beginning to the stage of relative maturity of feeling which he should have reached.

Children, and adults, whose development has been so delayed, will with difficulty be tolerated by society; and for their part, the as yet unsocialized individuals may seek in every group they meet, not group life, but opportunities for forming the crude attachments through which they must pass if they are to progress to something higher. Emotional retardation is as real as intellectual or educational retardation, though not as easily measurable.

Frances, who was ten, was a child completely rejected by her mother, a woman of cold nature. Her

father was intermittently and superficially kind to her. At school she was solitary; at home and in the streets she was actively anti-social. When she came to the child guidance clinic the therapist found it at first impossible to make any contact with her. Frances looked like a child in despair. She continued to attend the clinic as though urgently seeking help, but she could form no link with anyone there.

One day in the waiting room she met Philip (whose story is told above), and they "clicked"! The therapist made the difficult experiment of taking the two children together in order to encourage and watch Frances' attachment. It was pathetic to see the girl's wooing of her first friend, while Philip, with his easy unselfconscious response, was quite unaware of the miracle he was working. Frances was on the road to recovery.

When investigation is made into the provision of recreation for delinquent children, it will be found that there are some young offenders who cannot play. To the normal child, play brings joy and release, and we are rightly disturbed when we meet a child who cannot play. Among such children may often be found the delinquents whose offences are psychological in origin. There are children who can work but cannot play, who are burdened with anxiety, fear and guilt, and who cannot relax in a play atmosphere. Such boys and girls may be more at ease in a work group, in school or in employment, and when they find themselves in a play group they may seek relationship there, preferring arduous and responsible occupations to the more light-hearted pleasures offered.

With psychological recovery the ability to play will return, but during the phase of depression little attempt should be made to persuade these children to join other normal children whose feeling tone is so different from their own. Lively, outgoing grown-ups, also, may have to learn to tolerate depression in children without using any direct means to break it up. In the majority of cases recovery is spontaneous. If the depression is severe or prolonged, psychological advice should be sought.

It appears, then, that for many young offenders the club or play center does not provide the best means of social education, nor the best field for recreation. Probably some additional or alternative provision is needed in the form of more specialized groups. The therapeutic groups, organized by the Jewish Board of Guardians in New York for maladjusted children, would appear to meet more nearly the needs of young offenders than would the ordinary "neighborhood club."

These groups, each formed of not more than eight children, all of them suffering from more or less severe personal difficulties, meet under the care of adults who have had some psychological training. These groups, because of their small size and elastic constitution, can tolerate the non-coöperation, the indifference, and even the hostility of severely disturbed children, and can adjust to their mood-swings in a way which would be impossible for a large club. A boy or girl may remain a member of the "protected group" for as long as two years, and then, recovered in health, may pass on to membership of the neighborhood club.

How far then can the ordinary club and play-center meet the needs of young delinquents for social education and for recreation? Adequately, in the majority of cases, but for a significant minority something different is needed. The delinquent and the potential delinquent may need special care and special provision. Some delinquent individuals are, without being pathological, so different from the average in constitution that throughout their lives they may avoid large and undifferentiated groups.

They are not, however, incapable of making contact with others and in the smaller, more selective groups formed by older adolescents or adults, for the furtherance of special aims and the development of special interests, they may find their proper milieu and make their contribution. Society, when it understands delinquency better, will find it necessary to ostracize fewer of its members.

PSYCHOSES AMONG WOMEN GOVERNMENT WORKERS IN WARTIME[1]

HAROLD STEVENS, PH. D., M. D., WASHINGTON, D. C.

One of the consequences of wartime industrial expansion is increased social mobility with gravitation of workers to centers of employment. The city of Washington is one such focal point to which job-seekers are attracted even in time of peace but with the prodigious wartime government expansion, a rapidly accelerated employment program has brought thousands of new workers here, many from remote communities. Because of growing demands for replacement of drafted men, an increasing proportion of women are entering industrial and government service, many moving to already overcrowed urban centers. In the city of Washington, during the defense and war period, there was an increase of over 100,000 civilian jobs held by women, with a moderately high rate of turnover. In November, 1944, nearly 500 new government employed women came to Washington, while the number of men employed decreased by nearly 1600 during the same period.

This is a study of one of the problems consequent to such mass labor mobilization, and is an investigation of white women civil service workers admitted to St. Elizabeths Hospital from January 1, 1942, to January, 1944. A total of 89 cases comprise this group, all of whom were non-residents of the District. It should be emphasized that not all non-resident mentally-ill women are admitted to St. Elizabeths Hospital, an unestimated number leaving the scene of their breakdown before their illness is recorded, some being sent home by their employment counsellors, physicians, friends and others.

The 89 patients originate from 32 states, New York having 12 representatives, California, 9; Minnesota, 8; Texas, 7, and the rest distributed among the remaining 28 states. With only a few exceptions, all came to Washington with previously obtained civil service appointments, went directly to work here, most being employed in the War and Navy Departments. Their subsequent period of employment with the government was relatively brief—three manifesting symptoms of psychosis on arrival and 58.4 percent becoming hospitalized in less than six months. Many were partially incapacitated before hospitalization, their productivity and efficiency declining in varying degrees, before mental symptoms became evident to their colleagues, supervisors or neighbors. Since almost all these patients were stenographers or typists, defective work performance, *per se*, did not constitute a threat to the safety of their fellow workers, as probably occurs when psychosis develops in workers in a hazardous industry.

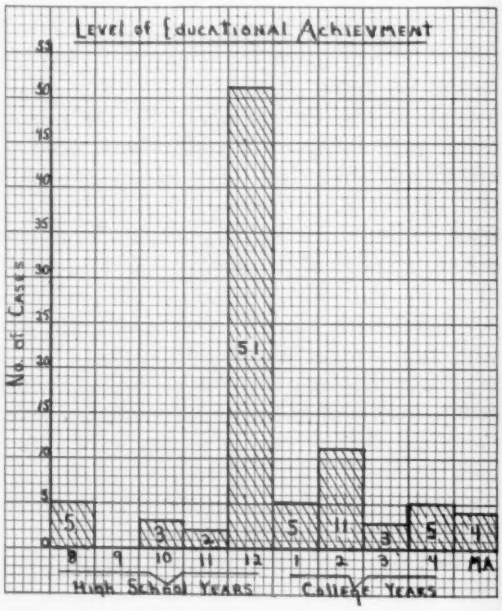

FIG. 1.

The data on the background of this group of patients indicate that only 2 were foreign born, 22 having both parents born abroad and 5 with one foreign-born parent. Forty-two percent have a definite family history of mental disease.

Sixteen different religions are represented, 30.3 percent of Catholic, 15.7 percent of Methodist and 11.3 percent of Hebrew faith; the rest scattered among the other 13.

Fig. 1 indicates a moderately good level

[1] From St. Elizabeths Hospital, Washington, D. C., and George Washington University School of Medicine.

of educational attainment with 88.7 percent having had a high school education or better. In most instances however, those with college training were content to accept positions beneath their level of scholastic training. Most of these patients were typists or stenographers prior to civil service appointment and continued in that capacity here, earning $1440 to $1660 per annum. As indicated (Fig. 2) previous occupational adjustment was poor in a large segment of this group (37 percent) but 40.3 percent made a good or better work adjustment prior to government employment. This is in contrast to the occupational records of servicewomen admitted to the women's receiving service of

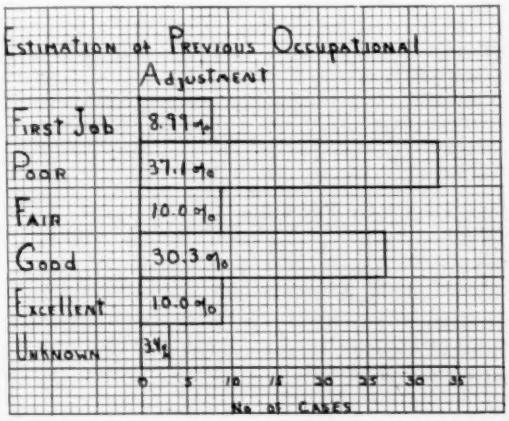

FIG. 2.

St. Elizabeths, about 50 percent of whom show a poor occupational adjustment prior to enlistment in the military service. The average age (Fig. 3) of the group is somewhat older than would be expected—being 31 years. Further comparison of the characteristics of this group of psychotic workers is afforded by a sample study made in December, 1942 of total civil service placements in Washington. This survey showed that of total war service appointments, approximately 35 percent reported residences outside of Washington metropolitan area, 52 percent of these non-residents being women, 51 percent of whom were under 25 years of age, 39 percent were 25 to 44 years of age, and 10 percent were 45 years of age or more; 64 percent were single.

Fig. 4 reveals that two-thirds of the 89 cases are single, with two and one-half times more divorced patients than married ones. These data suggest a high incidence of marital maladjustment, while the large number of older and unmarried members of this series may be an index to their relatively poor bargaining power on the matrimonial market. However, this latter finding is subject to

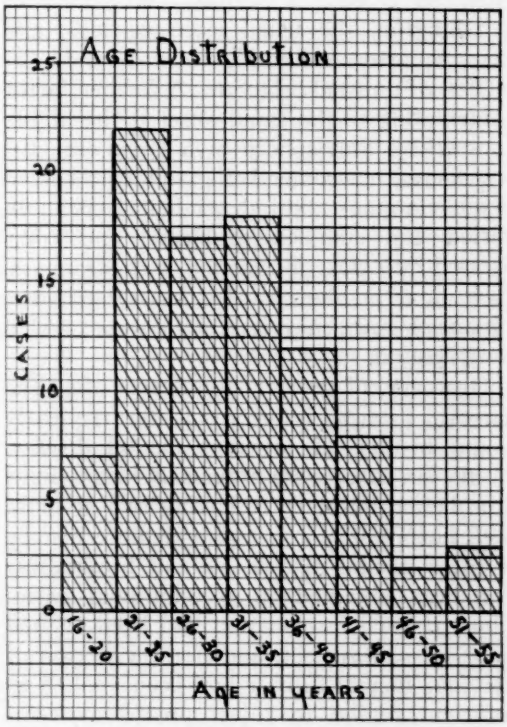

FIG. 3.

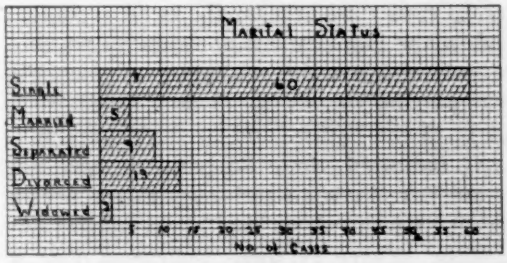

FIG. 4.

another interpretation. Single women, particularly in the older age bracket, must rely on their own resources for support, consequently tend to gravitate to areas of greater employment opportunity. Because of the relative job security, government service is particularly desirable. In addition, being single, they have less family ties, are freer to change their residence.

The onset of the attack in these patients was relatively abrupt in the majority of cases, the duration of the attack before admission being one month or less in half the cases. This may be explained partially by the nature of the milieu in which those psychoses appear. Symptoms of mental disease are more readily observed in such a compact community as Washington, the usual close working and living quarters militating toward ready detection of unusual behavior. A further factor contributing to the rapid onset is the highly competitive atmosphere of a large city, the bewildered newcomer being suddenly forced to make a quick and independent decision on varied and complex problems, and compressed into close interaction with strangers, at work or in the crowded boarding house. Financial stringency imposes a super-added complication.

However, of greater significance than the harmful external influences is the frequently found history of previous mental disease. Thirty-six cases were previously hospitalized in a mental hospital, 19 having two or more such hospitalizations; and a definite history of prior mental disease without hospitalization was obtained in 9 additional cases. Thus, if such information had been elicited prior to employment, and if the criterion of previous mental disease had been applied as sufficient reason to reject prospective employees, half of these patients would have been eliminated from this series. This should not be construed necessarily as an argument against the employment of formerly psychotic patients, but the migration of mentally unstable individuals to distant localities is costly to the patient and to the community.

As indicated, these 89 patients were admitted here in 1942 and 1943 and reflect a period of particularly rapid government expansion. There is some indication that a plateau has been reached in this expansion, and there is a corresponding decrease in the number of psychotic non-resident civil service patients now being admitted to St. Elizabeths Hospital. However, this may be a temporary respite. The proportion of women in all types of employment is increasing and is certain to increase as the man power shortage grows.

It is estimated that 14,200,000 women were at work during August, 1943, 5,000,000 additional at the end of 1943. As the demand for women replacements of drafted men rises, increasingly competitive bidding for women's services will follow, further dislocation of women workers may be expected, with a high labor turnover inevitable. In addition, the government, like other employers will be compelled to accept less desirable and less highly qualified workers as the reservoir of women workers approaches exhaustion.

Table 1 represents the various diagnostic categories into which these patients fall.

TABLE 1

DIAGNOSIS

Dementia Præcox	62
Catatonic	33
Paranoid	15
Hebephrenic	1
Simple	1
Mixed	12
Manic Depressive Psychosis	19
Manic	14
Depressed	3
Mixed	2
Involutional Psychosis	2
Paranoid Condition	1
Alcoholic Hallucinosis	1
Psychoneurosis—Mixed	2
Psychosis—Undiagnosed	2

SUMMARY

Statistical data on 89 non-resident white women, civil service employees have been presented with the inference that these psychotic workers present a universal problem in industrial medicine that may be expected to become more acute with rising proportion of women workers.

It is felt that external influences hasten the onset—more than half the cases being hospitalized in less than six months after employment.

With the decline in the quality of prospective employees, closer scrutiny of previous occupational records is indicated and particular emphasis is placed on the history of previous mental disease as a prognostic index

The author is indebted to Dorothy Childs for her valuable assistance in compiling this data.

DR. C. G. JUNG AND NATIONAL SOCIALISM

S. S. FELDMAN, M. D., Rochester, N. Y.

It was in 1910 when Freud, oppressed by the idea of becoming, in his already advanced age, a leader of the psychoanalytic movement, felt the desire

"to transfer this authority to a younger man who would, quite naturally, take my place on my death. I felt that this person could be only C. G. Jung, for Bleuler was of my own age. In favor of Jung were his conspicuous talents, the contributions he had already made to analysis, his independent position and the impression of energy which his personality always made. He also seemed prepared to enter into friendly relations with me, and to give up, for my sake, certain racial prejudices which he had so far permitted himself to indulge. I had no notion then that in spite of the advantages enumerated, this was a very unfortunate choice, that it concerned a person who, incapable of tolerating the authority of another, was still less fitted to be himself an authority, one whose energy was devoted to the unscrupulous pursuit of his own interests." [1]

This is what Freud wrote in 1914 about Jung.

Since 1925 there had existed in Europe a journal devoted to the problems of psychotherapy and open to all the different schools of this field. The editor was the father of the constitution-theory, Prof. E. Kretschmer of Marburg (Germany), and it was printed in Leipzig. The moment Hitler rose to power the name of Kretschmer and those of the other co-editors disappeared from the cover. The only editor was Dr. C. G. Jung of Küstnach-Zürich. This was in 1934.

In the same year Dr. C. G. Jung, together with Prof. Dr. jur. and Dr. med. M. H. Göring,[2] published a pamphlet titled *Deutsche Seelenheilkunde* (German psychotherapy), "for the orientation of the present state of German psychotherapy." In 1934 the *Zentralblatt für Psychotherapie*,[3] the editor of which was now Dr. C. G. Jung, published a paper by Jung, "Zur Gegenwärtigen Lage der Psychotherapie" (The present status of psychotherapy), in which Dr. C. G. Jung, after accusing Freud and Adler of inaugurating a negative psychology because as Jews they could see only faults and not virtues, writes the following:

"on the other hand the Aryan unconscious contains continuity and creative germs and has to live up to the task of its future. The young Germanic race is still able to create new forms of culture, and this power, resting in the unconscious of every German individual, as a germ laden with energy, is able to kindle powerful fire. The Jew, as relatively a nomad, has never had and never will have, his own culture. . . . . His instincts and his abilities necessitate his living among a host people. The Jewish people, far more developed than others, does not bother with the unfolding of the tension of its future. The Aryan unconscious has a higher potential than the Jewish, and this is the advantage and also the disadvantage of a young people close to the barbarian. The Jewish psychology cannot understand this and considers it nonsensical. I warned the world of this and was therefore called an antisemite. Freud is responsible for it. He and his Germanic followers could not understand the German psyche. Have they been taught a better lesson by the powerful National-socialism at which the whole world looks with admiration—a movement which pervades a whole people and is manifest in every German individual? [4]"

Well, this was written in 1934.

But on V-E day Dr. Jung in an exclusive interview with the leading Swiss weekly, *Die Weltwoche* said the following:

"Today, the German resembles a drunkard awakening with a hangover, not knowing or not willing to know what he had done. He will try frantically to rehabilitate himself in the face of the world's accusations and hate—but that is not the right way. The only right way is his unconditional acknowledgment of guilt. The American therapy of conducting the German population to concentration camps and making them see all the atrocities committed there, is quite correct. But such object lessons must be combined with moral instruction—instead German penitence must come from within. The psychologist cannot make a distinction between the mentality of the Nazis and of the régime's opponents. . . . . All, consciously or unconsciously, actively or passively, are concerned in the atrocities. They knew nothing of these things—yet they knew them. Let us not forget that the solution . . . . is not grand propaganda and mass conversions . . . . but . . . . man to man persuasions.[5]"

Sapienti sat.

[1] The Basic Writings of Sigmund Freud. Translated by Dr. A. A. Brill. Pp. 959-960.

[2] A relation of Reichsmarshal Herman Göring.

[3] Zentralblatt für Psychotherapie. Herausgeber Dr. C. G. Jung. Band 7. Erstes und zweites Heft. 1934. Verlag von S. Hirzel in Leipzig. Pp. 8-10.

[4] Present writer's translation.

[5] With the kind permission of Reuters which published the story in the U. S. A. P. M. Daily. May 10, 1945.

STANDARDS FOR PSYCHIATRIC HOSPITALS AND OUT-PATIENT CLINICS APPROVED BY THE AMERICAN PSYCHIATRIC ASSOCIATION
(1945-46)

The Committee on Psychiatric Standards and Policies of the American Psychiatric Association is cognizant of the fact that the attention of the entire nation has been focused upon the need for adequate preventive and curative mental health services for all the people, and that there is a definite demand for such hospital and out-patient services within the means of all classes of society.

To comply with such popular demand, The American Psychiatric Association representing some 3,500 psychiatrists throughout the United States and Canada, through its Council, has approved the following standards and policies for all mental hospitals and out-patient clinics. The Council recognizes that such standards cannot be achieved within a short time, but it should be the goal of every hospital and clinic to establish them within ten years, thus qualifying as both a treatment and training centre.

Standards for Psychiatric Hospitals

1. All hospitals should have a small unit or department which will take the place of the present receiving ward, where patients upon admission will remain a brief period (usually not to exceed two weeks) to be classified and housed according to their condition. This unit will require the services of a psychiatrist for every 30 patients under observation; a graduate nurse for every 4 patients and a trained attendant for every 6 patients under observation.

2. Approved hospitals should have a special unit or department for acutely mentally ill, where a patient will receive individual medical, psychiatric, nursing care and treatment, and individual services in the field of occupational, recreational and allied therapy. Intensive psychotherapy, in conjunction with physio-hydro-therapy, as well as modern organic therapy must be considered as indespensable in each case. The size of such a unit should accord with the admissions within a three- to six-months' period. This unit will have a small sub-unit for disturbed acutely ill individuals who will receive the same individual care and treatment.

All cases in the unit for acutely ill should be housed either in single rooms or in small dormitories. Such a unit will require a psychiatrist for every 30 patients; a graduate nurse for every 4 patients; a trained attendant for every 6 patients; a physio-hydro-therapist, an occupational-therapist, and a recreational therapist for every 30 patients requiring such treatment, and any other service indicated.

3. Hospitals should have a unit or department for a convalescing group where a patient will receive somewhat similar care, although not requiring as intensive treatment as in the unit for the acutely ill. The size of such a unit will be determined by the number of home convalescing patients during a period of six months. Such a unit will require a psychiatrist for every 50 patients; a graduate nurse for every 16 patients; a trained attendant for every 7 patients; an occupational therapist for every 30 patients; a recreational therapist for every 50 patients, and any other service indicated.

4. Hospitals assuming responsibility for patients with a favorable prognosis but who require intensive prolonged treatment and care should have a unit or department for such patients. Such a re-educational service will require a psychiatrist for every 75 patients; a graduate nurse for every 25 patients; a trained attendant for every 8 patients; a physio-hydro-therapist, an occupational-therapist and a recreational therapist for every 75 patients, and any other service indicated. This unit will have a special sub-unit for chronic disturbed patients.

5. Hospitals receiving patients who require continued treatment should have a special unit or department. Such a unit will need a psychiatrist for every 200 patients;

a graduate nurse for every 40 patients; a trained attendant for every 6 patients; a physio-hydro-therapist for every 200 patients; an occupational therapist for every 50 patients; a re-educational therapist for every 50 patients; a recreational therapist for every 100 patients, and any other service indicated.

6. Hospitals receiving senile and arteriosclerotic patients should have a special unit or department for such patients. Such service will require a psychiatrist for every 200 patients; a graduate nurse for every 50 patients; a trained attendant for every 8 patients; an occupational-recreational therapist for every 100 patients, and any other service indicated. This department will also include a special infirmary section with a graduate nurse in charge.

7. Hospitals should have a special unit known as a medical and surgical department for patients who are actually physically ill, requiring either medical or surgical treatment. This unit will require well trained physicians, who have had adequate experience in general medicine and general surgery, with some psychiatric background. This unit should meet minimal standards of the American College of Surgeons.

8. Mental hospitals receiving children under 16 years of age, will require a special unit or department known as the children's unit. Such a unit will require the service of a psychiatrist, who has had training and experience in a child guidance clinic, and preferably pediatrics, for every 30 children; a graduate nurse for every 10 children; a trained attendant for every 7 children; a teacher for every 20 children; an occupational-recreational therapist for every 30 children; a physio-hydro-therapist for every 30 children; and any other service indicated.

9. If a mental hospital receives alcoholics and/or other drug addicts, it should have a special unit or department for their care and treatment. Such a unit will require a psychiatrist for every 25 patients; a graduate nurse and a trained attendant for every 8 patients; a physio-hydro-therapist for every 25 patients; an occupational therapist for every 50 patients; a recreational therapist for every 30 patients; and any other service indicated.

10. Mental hospitals should have a special unit or department for tuberculous patients. Such a unit will require the services of a physician experienced in the field of tuberculosis for every 75 patients and a psychiatrist for every 100 patients; a graduate nurse for every 5 patients; a trained attendant for every 6 patients; an occupational therapist for every 25 patients, and any other service indicated.

No institution can be considered a modern hospital unless it has adequate facilities for all types of physical examinations and tests required by the American College of Surgeons, including well organized clinical and pathological laboratories under competent direction; a rœntgenological department; and a medical library under supervision of the clinical director.

Every approved hospital should be under the management and direction of a superintendent, who should be a well qualified physician and experienced psychiatrist with administrative ability, whose appointment and removal should not be controlled by partisan politics. In hospitals with a population of more than 1,000 patients there should be an assistant superintendent, who should be an experienced and well qualified psychiatrist as well as a good administrator.

Since adequate service can be rendered to the patients only through a competent staff, it should be imperative for every mental hospital to have a very well trained and experienced psychiatrist as clinical director, who will be the coordinator and stimulating head of the medical staff, and who will organize systematic instruction and rotation of service for the members of the staff. He should institute and supervise seminars for scientific discussions at frequent intervals. Staff meetings should be held at regular intervals, not less than once a week, under the direction of the clinical director.

It is desirable that the superintendent or medical director, the assistant superintendent and the clinical director should be diplomates of the American Board of Psychiatry and Neurology.

Salaries for the above positions should at least be comparable to those of specialists in other fields of medicine in the respective communities.

Every members of the staff of each hospital should be encouraged to devote a certain number of hours per week to research or scientific study and investigation.

It is desirable that every mental hospital have a well organized department of clinical psychology.

All nursing, including attendants, in the mental hospitals must be placed under the director of nursing, who would be responsible to the individual medical authority of each service, to the clinical director and the superintendent of the hospital.

It is desirable that the director of nurses should be a graduate of an approved school of nursing affiliated with a general hospital, who has the degree of Bachelor of Science of Nursing Education or its equivalent, and who has had a post-graduate course in psychiatric nursing in a recognized hospital. She should have had at least five years' experience including special training in administration.

It is desirable that every mental hospital should have a training school for nurses wherever possible, as well as affiliate nursing courses.

Mental hospitals should attempt to have a larger corps of well trained psychiatric nursing instructors. Many hospitals have been impeded and retarded in their educational programs for nurses and attendants by the scarcity of properly qualified instructors. It is suggested that every hospital should attempt to develop a post-graduate course for such instructors at the university level, wherever possible, and under the control of the universities using mental hospitals for practical training.

Every approved hospital should have a minimum of one trained social worker for every 100 annual admissions, under the direction of a chief, who will so organize the department that there will be adequate pre-admission, admission and follow-up services.

Psychiatric social workers should be graduates of an approved school of social work with at least 800 hours of supervised work experience in a psychiatric agency.

The chief psychiatric social worker should have had three years' additional professional experience, at least two being in a psychiatric hospital and clinic.

Every mental hospital should have the services of a well organized dental department, under the direction of a well qualified dentist.

Every hospital should have the services of a well organized department of pharmacy.

All non-medical administration duties should be rendered through a special service department, headed by the proper medical officer or business manager, under direction of the superintendent.

The medical record system in a mental hospital should be under the supervision of a medical records librarian, fully qualified and if possible accredited by the American Association of Medical Record Librarians.

Every hospital should have a regular library for the patients, under the direction of a librarian.

Suggestions for a Simplified Commitment Law for All the States

The purpose of a simplified admission law is to give patients access to an approved mental hospital in the same manner as to a general hospital. Such procedure should tend to dissipate the age-old concept that mental disease is something remote from physical disease.

Nature of Commitment

All states should have a simplified regulation whereby the patient, or in the case of a minor, parents or a guardian, may make application for admission on behalf of the patient.

Such admission would be regarded as voluntary and the patient could be continued under treatment as long as necessary.

In order not to restrain the patient from exercising his constitutional rights, he should always have the right to give written notice to the superintendent of his desire to leave. Then, should the superintendent consider that the patient requires further hospital care, he may request two disinterested physicians, preferably psychiatrists, to examine the patient; and if they concur that he requires further hospital care, they may provide the superintendent with a notarized certificate to that effect. Such a certificate would permit the superintendent to legally hold the

patient for such further care. The patient should have the right to appeal to the courts from this certificate.

The whole purpose of such a law would be to give the mental patient all the liberties possible that are given to a patient suffering from physical disease. There may be a few individuals who will require formal legal commitment. However, when and if such is necessary the court, if possible, should be brought to the hospital. If the patient is to be conveyed under guard it should be by properly trained attendants rather than by uniformed court or police officials. In all instances a woman or male relative should accompany a female patient.

The question of guardianships, divorces, and other legal procedures should follow in accordance with the laws of the particular state.

Standards for All-Purpose Out-Patient Psychiatric Clinics

Purpose

a. It should be the policy of the clinic to accept for consideration persons presumed by the referring agent to be in need of psychiatric help, to elicit the necessary facts and to determine the extent and type of service needed.

b. It should be prepared to clarify the medical (psychiatric) disorder as to its genesis and characteristics (diagnosis) and to interpret these findings to persons or agencies who must cooperate in treatment.

c. In the case of a psychiatric disorder it should be prepared to offer appropriate out-patient treatment or else to help the patient secure such treatment. It should thus be all-purpose in its perspective.

d. If it has not reached an all-purpose capacity, provision should be made for the complementary services through other agencies. This all-purpose capacity should include the following diagnostic and therapeutic services:

1. Pre-hospitalization services.
2. Examination and treatment of non-hospital cases, adult and child.
3. Supervision and treatment of provisional discharged or convalescent post-hospitalization cases.
4. Supervision of care and custody cases (depending upon state policy).
5. Supervision of boarded out cases (depending upon state policy).
6. Consultation for the community agencies.

e. An educational program should be one of the functions of the clinic, which should undertake to add to the body of psychiatric knowledge.

Auspices

The auspices should be such as to promote continuity, collaborative community relationships and be flexible enough to allow for change.

Quarters

While the clinic may be centralized at a headquarters, it should, through branches if necessary, be brought close to the people it serves and should be on lines of transportation. The quarters should contain separate rooms for each of the professional staff, reception facilities and clerical record space adequate for the protection of records.

Clinics should be located preferably in connection with such institutions as general hospitals or public health centers.

Financing

The clinic should be operated on a budget sufficiently detailed to allow the calculation of case costs for the various services. Salaries should be adequate to maintain a stable staff of competent personnel, and should be not less than the average income of such specialists in the area served.

Operation

The clinic should have some morning, afternoon and evening sessions. When several clinics serve a community they may share this coverage. Two such sessions a week is minimal for a clinic operating under one authority and budget.

Policies of intake in regard to type of patients, and financial limitations imposed upon admissions, should be defined and clearly made known to referring agencies. Admissions should be so limited that the psychia-

trist's load can be handled in the time allotments specified above.

Affiliations

Unless organized for profit, the clinic should have an affiliation with a medical school, hospital, welfare or public health department, or professional organization for the exchange of services, scientific advancement, and professional and administrative support. If there is no such affiliation, as in the case of a clinic set up by a community fund or private resources, the clinic should have an organized board of directors.

Case records should reflect close collaboration with other community agencies. Such agencies and physicians should be the chief sources of reference of cases.

Staff

a. The clinic should be under the direction of a psychiatrist, working at least one-half time in the case of a full-time clinic.

b. The assistant staff should consist of psychiatrists and psychologists in the ratio of one psychologist for each one to two psychiatrists on full time basis and two to three psychiatric social workers to each psychiatrist. There should be one clerical worker to each full-time psychiatrist.

c. Qualifications.

Psychiatrists should have had (1) a general internship, (2) at least two years of residency in psychiatry based upon a planned program of education and (3) a year of supervised training in out-patient psychiatry with special emphasis on the neuroses; experience in clinical neurology, neuropathology, psychoanalysis, community education and relevant laboratory procedures related to mental illness are desirable. The training in out-patient psychiatry should be in a clinic employing the coordinated services of a psychiatrist, psychologist and psychiatric social worker. A chief psychiatrist should have had at least five years' experience in psychiatry including two years in a clinic and experience in clinic administration and community education.

Psychologists should have had a year of graduate study in psychology equivalent to that leading to a master's degree, including abnormal psychology, tests and measurements, statistics, educational psychology, remedial measures for learning disabilities, vocational counseling and supervised out-patient training of at least one year in a well organized clinic, and one year of subsequent experience in such a clinic. This experience, dealing with both children and adults, should include delinquency, behavior problems, school maladjustments, physical handicaps, mental defect and disease and vocational problems. A chief psychologist should have had two full years of graduate work and five years of experience including additional experience in a clinic with a psychiatrist and a psychiatric social worker.

Psychiatric social workers should be graduates of an approved school of social work with at least 800 hours of supervised field work experience in a psychiatric agency. A chief psychiatric social worker should have had three years additional professional experience, at least two being in a psychiatric clinic employing a psychiatrist and psychologist.

d. Staff policy.

Full time staff is preferable.

The director should give at least half time.

Staff should be large enough to ensure good clinical work.

New staff and especially trainees should be under a planned program of training including specific hours set aside for conference and supervision.

Social work staff should be full time.

Conferences should be scheduled weekly or oftener for the purpose of staff training, collective thinking on individual cases, and policy making. Conferences should be held between the members of the clinic staff and other social agencies.

e. There should be liaison and consulting arrangements with other agencies.

Case Policy

Services should be varied and adjusted according to the needs of the case.

Services should be by appointment.

In general one hour should be allowed for each patient per visit.

Therapeutic activities by the non-psychiatric staff should be delegated by the psychiatrist at his discretion and under his

supervision and personal responsibility. The generally accepted functions of the psychologist and psychiatric social worker are carried as their professional responsibility.

Twenty treatment cases averaging one visit a week represent the maximum capacity per psychiatrist.

Recording

The important facts about a patient should be kept in typed permanent record in a locked file. This should be the combined record of all staff members on the case.

Reports

a. The content of a report should be adjusted to the purposes of the agency reported to, and in keeping with ethical practice.

b. In general a report should contain

1. A summary of the problem as referred and accompanying data.
2. Additional and confirming data resulting from clinic work.
3. A diagnosis in the form of a brief genetic reconstruction of the disorder.
4. The classification according to standard nomenclature.
5. Treatment given or required and recommendations and plans.
6. Prognosis and factors that will influence outcome.

The quality of records and reports is best determined by inspection of unselected samples.

Education

Education should be a part of the clinic function. This may include

1. General public education regulated by policies designed to avoid waste of staff time.
2. Professional education of related persons and agencies through work on cases and other means.
3. Training of psychiatrists, psychologists and psychiatric social workers within the clinic itself.

Types of service should include

A. Consultation.
B. Diagnostic study and report.
C. Reference of patient and other medical examinations and treatments, not provided at the clinic.
D. Treatment.

This revised report of the committee is the result of careful study and consideration of the replies received from 67 prominent psychiatrists throughout the United States and Canada during March, 1945.

COMMITTEE ON PSYCHIATRIC STANDARDS AND POLICIES OF THE AMERICAN PSYCHIATRIC ASSOCIATION.

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REPORTS OF COMMITTEES

Report of the Committee on Public Education

The Committee on Public Education, serving in its official capacity during the past year, has been faced with the two-fold problem of not only dispensing official information to increase the public understanding of psychiatry and to improve relations between the people and organized psychiatry, but also of combatting a wave of misinformation which has engulfed the public mind.

Lay writers, quick to see public interest in the psychological effects of war, have put psychiatry in the news. Appearing in the press, on the radio, and on the speakers' platforms, a sudden surge of peremptory and dogmatic statements concerning the psychological ravages of war on the men in our armed forces has resulted in an epidemic of misgiving which approaches "mass psychiatric jitters."

Wives and mothers are dreading the return of their men from the war, fearing the "changes" resulting from their experiences on the battlefronts. Another group vitally concerned with the mental and physical health of the returning veterans is industry, which has been poisoned by psychiatric warnings on every side, and has actually become fearful of entrusting the safety of their equipment and other employees to the returning men.

With the assumption of a magnitude entirely out of proportion with the true state of affairs, these beliefs have induced the question as to whether or not there exists a near-panic state over the psychological effects of war. Out of this prevalent apprehension were born feelings of resentment and animosity toward the assertion of the instability of our armed forces.

Among the first to resent the "psychoneurotic fad," as they referred to it, were the servicemen themselves who found voice for their vigorous protests in their official organ, "The Stars and Stripes" which quoted, "Books are being published on the subject, newspapers are whooping it up, magazines are devoting good white space to the project, and every screwball with thick lenses and a long haircut is setting up shop as an expert on the returning veterans. . . . . A lot of self-anointed psychiatrists are having a field day with this psychiatric novelty." The editorial stated flatly, "We think it is about time soldiers in the field take cognizance of the situation and answer this whole maladjustment business with loud and prolonged Bronx cheers."

Also regarding the situation with a quizzical eye were certain clear-thinking civilians, whose animosity was reflected in an article by a well-known and popular newspaper man in Boston.

The American Psychiatric Association is fortunate in not having been identified with any of these psychiatric admonitions, but regardless of who perpetrated the sudden epidemic of apprehension, there is little doubt that psychiatrists themselves will be—and have been—blamed for exploiting the war and unsettled conditions of the world to gain the recognition for which they have been striving for many years.

Psychiatry, in common parlance, has been "on the spot," with the task of dispelling the panic state without endangering the public realization of the need for the services of established, scientific psychiatry. The danger of becoming discredited emphasizes the desirability of remaining in the strategic position of having official statements guarded and authoritative.

Toward that end, our Central Committee, State Representatives, and District Representatives have kept in close touch with each other, exchanging ideas and information, and circulating authentic information in their areas.

From the cumulative evaluation of the situation by members of the committee, there has been launched an unobtrusive, quiet campaign which aims to dignify the position of organized psychiatry in this orgy of cheap publicity. Speeches and articles given by or signed by members and officers of the Association have done much to maintain a sane balance between sense and nonsense, and to attribute the expansive propaganda to unauthorized sources.

In developing our plan of establishing our representatives as official spokesmen for the committee, there have been deliberate efforts to avoid controversial public statements in recognition of the fact that skill in publicity is as much concerned with knowing what to ignore, as what to publicize.

Over a year ago, our committee called attention to the necessity of differentiating propaganda and advertising on one hand, and conservative public education on the other. Without doubt, this past year has shown the wisdom of eschewing the former. However, as previously urged, there is need for clarifying the relationship between our committee and the National Committee on Mental Hygiene, or some similar society which popularizes psychiatry. We are advised by the National Committee on Mental Hygiene that it has been their policy to promulgate standards established by The American Psychiatric Association, both with respect to hospital organization and operation, and with respect to standards of personnel. The two processes of formulating and promulgating cannot be considered in any way contrasting or out of harmony, but there is so much to be done that we should avoid all duplication of efforts. If this entire relationship is not to be cleared up in the near future, we would like to ask for authorization to negotiate some sort of agreement leading to such an end.

Our committee has proceeded in the belief that working with employers, personnel groups, our own membership, and through the usual contacts

of the medical profession, will prove to be of more lasting value in the long run than any campaign possessed with the aura of advertising.

Members of this committee contributed largely to preparing a manual clarifying the problem of readjustment to peace, not only of the "neuropsychiatric veterans" and others who have seen military service, but also of the demobilized war workers who have undergone dislocations in their jobs, homes, and community environments, and who will probably present a greater psychiatric problem than the veterans. This manual was prepared in answer to a request from discerning industrialists anxious to learn the true state of affairs, and has proven that much can be gained by focusing our attention directly on the employers. Broadly speaking, in getting the neuropsychiatric cases back on the job, newspaper publicity is ineffectual as compared with quiet, direct work with those who have the jobs to offer. Many employers are scared away by the information generally released for public consumption, which they regard suspiciously as propaganda.

Another important development in psychiatry during the past year was the introduction in Congress of H.R. 2550, advocating a National Neuropsychiatric Institute. Particularly significant as being the first effort on a national scale to establish a Neuropsychiatric Institute, this bill is worthy of the careful consideration and attention of every member of the Association, and a copy of the bill was sent by this committee to each member. A vital interest was manifested in the numerous responses, and once again, the benefits of the policy of decentralization were manifested as the various members contacted their State Senators and Representatives, urging support of the bill.

The committee takes this opportunity to urge liaison between the efforts of this committee and the activities of others. In the interests of public education, we sincerely feel that a regular, official exchange of committee activities through the Executive Committee would further interlock activities of this committee with those of others, and yield great benefits. This year, with the cancellation of the meeting in Chicago, even that opportunity to learn of the work of other committees was eliminated.

Theoretically, recent acts of the Council were intended to place our committee continually in possession of facts about the Council and committee activities throughout the year, but the results achieved have been disappointing. Some more effectual machinery needs to be established.

Due to the cancellation of the annual meeting in Chicago, and in view of the urgent need for public education on the aims and services of psychiatry, this committee has consulted the Council and has been authorized to hold a special meeting in New York in October to formulate our program for the coming year. With the end of the war, it is more imperative than ever that a sound, enduring public relationship be established for psychiatry.

In conclusion, we wish to acknowledge the cooperation and efforts of the members of the Association in vitalizing our program of regional representation. We have made an effort during the past year to plan our program around national policies, but to carry it out through a decentralized program. The smaller and more cohesive the group which is being contacted, the more the information can be selected for efficacy. Therefore, if every member of the Association could be stimulated to act as a public relations person for the Association, the relationships established would be more lasting than would be possible through the nebulous, less purposeful newspaper publicity.

Proceeding with that policy, we plan to leave "propaganda and advertising" to others, and we hope to continue going forward on a program of long-range planning in the field of public education, a program of steady dissemination of authentic information at a speed, in a manner, and to an extent which the Association can sustain from year to year.

Respectfully submitted,

C. Charles Burlingame, M. D.,
Chairman,
George S. Stevenson, M. D.,
Vice-Chairman,
Charles A. Rymer, M. D.,
Newdigate M. Owensby, M. D.,
Gerald Jameison, M. D.,
Henry O. Colomb, M. D.,
Martin H. Hoffman, M. D.,
Gaylord P. Coon, M. D.,
Frank H. Luton, M. D.,
Howard R. Masters, M. D.

September, 1945.

Report of the Committee on Psychiatric Nursing

August 1, 1945.

As there is to be no annual meeting of the Association this year, the Committee on Psychiatric Nursing at the request of the Secretary-Treasurer is hereby submitting its annual report.

As indicated in the December 1944 report of the committee, the "Training Manual for Attendants in Mental Hospitals" has now been completed, published, and distributed. A grant of $2,000 for this purpose was received from the Rockefeller Foundation in January 1945. Slightly over 400 copies of the Manual have been distributed, and 600 copies were originally printed. The Chairman has received many favorable comments this month on the contents of the Manual and the useful purpose which many feel that it will serve. Superintendents of hospitals have commented favorably. Commissioners of Mental Hygiene in various states, and Departments of Social Welfare have expressed appreciation, as has the Veterans' Administration and the Second Army Service Command. Favorable comments have also been received from the Department of Health in Ontario, Department of Veterans' Affairs in Ottawa, and other Canadian Provinces. A number of requests have been received for additional copies of the Manual. The State Department of Social Welfare in Wisconsin

has requested 36 copies. Colonel Thom of the Second Service Command has requested 6 copies. This raises the question, of course, as to how any surplus remaining after the original distribution shall be disposed of, and also the future question as to policy with respect to revision and reprinting. To date, with one exception, requests for additional copies received by your Chairman have not been acceded to, as it is felt that this is too early a date to prorate the surplus copies and estimate future demands. Dr. Stevenson, of the National Committee for Mental Hygiene, has written that he will be interested in endeavoring to promote a standard course of training in some state or states based on the Manual. The original thought of the committee in having the Manual prepared and published was that this might be accomplished, and that training courses for attendants in the United States and Canada could be standardized and eventually accredited by the Association in the same way that nursing courses are presently standardized and accredited. The comments received to date indicate that this may be feasible and possible.

In December 1944, a request was made to the Rockefeller Foundation for a continuation of the grant of $10,000 a year for a period of three years beginning July 1, 1945, to carry on the work of the nursing project. This request was favorably acted on and a continuation of the project thereby assured for another three-year period. Dr. Alan Gregg, whose sympathetic attitude toward this project and also toward the publication of the Training Manual, was responsible for both of these grants, was written a letter of appreciation. The Council may be interested in Dr. Gregg's comment. He states, "I am glad to know that the Training Manual will be ready by June 1. I am sure we are getting full value for Mrs. Fitzsimmons' work, and I am delighted to have that kind of practical assistance going to the psychiatric field of nursing and attendant personnel."

The Council may recall that at the Philadelphia meeting your Chairman proposed that as part of the standards and policies of the Association there be incorporated a statement respecting nursing standards, and that all nursing including that given by attendants be placed under the Director of Nursing, who would be responsible to the Superintendent of the hospital. Also that there be established as the standard, a ratio of not less than one registered nurse to 20 patients on the basis of an eight-hour day. In a draft of the proposed recommendations of the Committee on Standards and Policies, which your Chairman was fortunate enough to see a few months ago, these recommendations with respect to nursing and nursing standards had been incorporated and substantially implemented. Your committee believes that this is a constructive step forward, and while it may not be practical at the moment to expect general compliance with the standard of one registered nurse to 20 patients, the mere setting up of such a standard provides a definite goal at which to aim.

During the year, the nursing consultant has worked in close collaboration with the New York State Hospital System in revamping and modifying the nursing service in the New York State Hospitals. She has also conferred frequently with various organizations and individuals interested in psychiatric nursing problems. Various universities and university representatives have sought the advice of the nursing consultant in connection with establishing graduate courses in psychiatric nursing. The number of such courses now in operation is gratifying, and should over a period of time train sufficient nurses to supply a very vital need in psychiatric nursing; that is, a more adequate supply of properly prepared instructors and psychiatric nursing executives. The development of affiliate courses has been seriously impeded to date by lack of qualified and trained instructors. The nursing consultant and your Chairman have had numerous inquiries from hospital superintendents with respect to how nursing instructors could be procured. The number of mental hospitals visited this year with the exception of those in New York State has been relatively small compared with other years. In the past it was considered desirable to obtain data from as many hospitals as possible, but since this has now been accomplished, visits to hospitals this year have been confined to those where there was some special indication that a personal visit was advisable.

As in the past, your committee has worked in close cooperation with the National League of Nursing Education in the development of curricular standards in psychiatric nursing. This year the nursing consultant has been appointed chairman of the Committee on Psychiatric Nursing of the National League of Nursing Education. Articles have been published on psychiatric nursing in the *American Journal of Nursing*, AMERICAN JOURNAL OF PSYCHIATRY, *Modern Hospital*, and *Hospitals*. An article has been accepted for publication in the *Canadian Nurse*.

During the year, certificates of Accreditation for Affiliate Courses have been issued to four hospitals. The procedure in each instance has been to secure from the applicant hospital pertinent data, and these data have then been transmitted by the Chairman to the various members of the committee, and a ballot taken. Where any question has been raised by a member of the committee, a personal visit has been made by the nursing consultant to the applicant hospital. In three instances, the courses accredited were in hospitals that had not previously had courses; and in the fourth instance, the hospital applied for a renewal of accreditation as the original accreditation had been granted a number of years previously.

As stated in the report to the Council on December 1944, the Committee on Nursing now feels that it has a sufficient body of data and sufficient familiarity with the psychiatric nursing situation throughout the United States and Canada to be able to advise authoritatively with respect to psychiatric nursing problems.

Your Chairman regrets to report the loss through death of one of the committee's oldest and most enthusiastic members, Dr. Henry I. Klopp. Dr. Klopp has been active as a member of the Com-

mittee on Nursing for twelve to fifteen years. His advice was always sound, sincere, and much appreciated. We all regret his passing.

Dr. Ralph Chambers has acted as vice-chairman of the committee, and read the committee report at the December meeting of the Council, as the Chairman was unable to attend due to transportation difficulties. His services are gratefully acknowledged.

Respectfully submitted,

CHARLES P. FITZPATRICK, M. D., *Chairman,*
JAMES H. WALL, M. D.,
RALPH M. CHAMBERS, M. D.,
EMMETT F. HOCTOR, M. D.,
GROSVENOR B. PEARSON, M. D.,
JOSEPH E. BARRETT, M. D.,
KENNETH E. APPEL, M. D.,
ARCHIBALD MCCAUSLAND, M. D.,
WILLIAM L. PATTERSON, M. D.

REPORT OF SPECIAL COMMITTEE ON PSYCHIATRY IN THE ARMED FORCES

Since the report of the Special Committee on Psychiatry in the Armed Forces given to Council on Tuesday, December 19, 1944, four meetings have been held in Washington, D. C.

The first meeting was held in the office of the Surgeon General on January 25, 1945, with all members attending. At the afternoon meeting, which was held with Colonel Menninger and members of his staff, they presented a report on much of the work which was going on in their Division. Special emphasis was placed on a conference of Mental Hygiene Consultation Service Psychiatrists which had been held early in January. This committee were united in their opinion that Consultation Service was one of the best psychiatric efforts in the Army and agreed with the attempt to increase the preventive function of the psychiatrist.

Other topics discussed were the psychiatric treatment program, hospitalization plans and patient load, with description of plans being made in all these areas of service.

The impression was gained that Colonel Menninger has a very able corps of assistants, although numerically still too few, and that considerable progress has been made in preventive measures and in the endeavor to institute active treatment in all hospital installations. The great problem was still that of insufficient numbers of trained personnel.

The second meeting was held on Friday, March 30th. The Special Committee on Psychiatry in the Armed Forces, having been designated by the Council as the Association's representatives to meet with Mrs. Franklin Delano Roosevelt for a conference on some of the problems of psychiatry, had lunch with Mrs. Roosevelt at the White House, as guests of Mrs. Roosevelt.

Mrs. Roosevelt presented to us a number of requests that had been made to her concerning her endorsement of various psychiatric problems in various fields. The committee discussed these problems and advised. Mr. Jonathan Daniels, the Public Relations Secretary, was very much interested in the whole matter of mental health at all levels and was at the time of the meeting endeavoring to prepare for the President as much factual material as possible, especially in reference to the problems of psychiatry.

On April 20th and 21st a Neuropsychiatric Service Command Consultants' conference was held in Washington and was attended by Dr. Alan Gregg, Dr. Edward A. Strecker, Dr. Frederick W. Parsons, Dr. Edwin G. Zabriskie and Dr. Arthur H. Ruggles. The conference was first addressed by Major General Norman T. Kirk, The Surgeon General, and the scope and purpose of the conference were outlined by Colonel William C. Menninger. Some of the topics discussed were: induction centres, hospitalization, reconditioning, clinical psychology, psychiatric social workers and assistants, mental hygiene consultation services, neurology, rehabilitation centres, personnel, nomenclature, and public relations.

The two-day session was summarized very ably by Colonel W. C. Menninger. This was an extremely interesting two-day conference, containing much factual information and producing much discussion on ways and means by all the Service Command Consultants, and Administrative Officers in Colonel Menninger's office.

The fourth meeting of the year was held at the office of the Surgeon General on July 19, 1945, and was attended by Dr. Edwin Zabriskie, Dr. Frederick W. Parsons, Dr. Alan Gregg, and Dr. Arthur H. Ruggles.

1. Lieutenant Colonel Norman Q. Brill outlined the present problems. The problem as to the aim of the convalescent hospital and whether it is to return patients to duty or to prepare them for civilian life was discussed at length, and the consultants were entirely in agreement with the statement prepared for General Bliss as the aim affects the neuropsychiatric patients. It is their consensus of opinion that the aim should be an attempt to return the patients to duty.

2. Dr. Alan Gregg suggested the possibility that major emphasis should be placed on a plan for a long-time follow-up study of the results of treatment efforts in the Army. He recommended that a ten- or fifteen-year plan to follow these patients to determine how they readjusted to civilian life be put into effect. The consultants were informed as to the present status of the directive concerning the discharge of individuals because of homosexuality. They endorsed the policy that individuals with a good record and no overt offenses should not be given a blue discharge. The consultants were informed as to the efforts presently under way to abolish the 600-500 and the 600-505 Boards.

3. Colonel William C. Menninger presented the present picture of neuropsychiatric personnel problems in the absence of Major Herbert Gaskill, who was on a field trip, and explained that at the present time there are 2402 medical officers practicing neuropsychiatry in the Army. In addition, there are approximately 350 commissioned clinical psy-

chologists and approximately 400 enlisted personnel doing psychiatric social work. In view of the fact that at R plus 6, it is estimated that there will remain a deficit of neuropsychiatrists amounting to 392, it was recommended that every effort be made to continue the School of Military Neuropsychiatry as now planned at Mason General Hospital, plus the one course at New York University and Columbia.

4. Major Manfred Guttmacher reported on the Mental Hygiene Consultation Services, indicating that between five and ten percent of trainees were referred to Mental Hygiene Consultation Services, and of this number, approximately ten percent were recommended for administrative discharges and three to eight percent sent to the hospital. He also presented the present point of view relative to the desirability of maintaining the present psychiatrists in the consultation services rather than routinely attempt to replace them with overseas returnees. He explained the need for the Table of Organization for those units and indicated that the Ground Forces were preparing such, but that in the Service Forces, this was a matter to be handled through the service commands. He emphasized the therapy that was being done in these units, as well as the major function of preventive psychiatry.

Major Guttmacher then presented problems concerning redeployment, indicating that 22 new Mental Hygiene Consultation Services would be established in the War Department circular soon to be issued. All four of the consultants present had an important rôle in the Medical Department in the last war and recalled specifically the tremendous increase in neuropsychiatric problems following the Armistice. It was pointed out that we might anticipate the same occurring in this war.

5. Major John Appel presented activities of the Mental Hygiene Branch, soliciting the opinions and suggestions from the consultants relative to the problem of abuse of medical channels and how to prevent it. He described the problems of the dispensary and the tentative thoughts to be included in a War Department circular on this subject. He explained in detail, the plan for treatment of neuropsychiatric casualties in combat, and received the enthusiastic indorsement of the consultants of this plan. They also strongly favored the development of a specific tour of combat for the Infantry soldier.

6. Lieutenant Colonel Morton Seidenfeld presented the present status of the psychologists, indicating that a plan was being developed to transfer them to the Medical Administrative Corps, and the Chief Psychologist and his office to be moved to the Neuropsychiatry Consultants Division of The Surgeon General's Office. He explained that the psychologists in several of the service commands had had conferences recently, including the 1st, 2nd, 4th and 5th Service Commands. He announced that an allotment has just been granted to commission an additional 100 clinical psychologists. He reported that The Adjutant General audit teams had visited approximately 100 installations and had yet to give an adverse report on the relationships of the psychologists to the functioning of the neuropsychiatric services in those hospitals. He indicated the belief that psychological services were not really as adequate in overseas units.

7. Major Daniel O'Keefe reported briefly that the Division was attempting to determine the specific needs for psychiatric social workers, the location of those now on duty, and how we might attempt to implement these needs.

8. Colonel Menninger concluded the meeting with a discussion of the list of current projects, several of which had not been touched upon in the above discussions. The division plans to emphasize group psychotherapy and to attempt improvement of it were presented. It was explained that the pamphlet to be given to psychoneurotic patients at the time of discharge is presumably in press. The War Department circular on division psychiatrists, issued two years ago, has expired and it is tentatively planned to put this material into Army regulations. A brief statement was made relative to the part psychiatry is playing in the Correction Division program, including a new school to be established at Fort Oglethorpe. The consultants were informed relative to the plan to issue a technical medical bulletin on psychotherapy under sedation; a revision of Technical Medical Bulletin 21, dealing with lecture outlines for new trainees; a technical medical bulletin on psychiatric testimony at court martials, and finally the request from G-1 to prepare a War Department circular on malingering.

The consultants evidenced a special interest in the nomenclature outline as it was submitted to them and were unanimous in their opinion that it should be published. It was recommended that it should be clearly indicated as to the disposition of individuals with the various types of diagnoses, and that it would be wise to indicate how the present terminology would fit in with the previous terminology. The particular problems of treatment and post war psychiatric training plans were also discussed.

ARTHUR H. RUGGLES, M. D., *Chairman.*

STANDING COMMITTEES

The following is a corrected report of committee appointments as announced on page 119 of the July 1945 issue of the JOURNAL. The official committee appointments made by President Bowman are as follows:

Veterans:
Howard Potter, *Chairman* (for three years).
Edwin G. Zabriskie (for two years).
Howard K. Petry (for one year).

Formal and Academic Education:
Frank O'Brien, *Chairman* (for three years).
Paul Yakovlev (for two years).
David Slight (for one year).

Recreation:
Conrad Sommer, *Chairman* (for three years).
Walter Barton (for two years).
Frank Tallman (for one year).

Public Health:
Clifton Perkins, *Chairman* (for three years).
Robert H. Felix (for two years).
Hugh C. Henry (for one year).

Report of Treasurer

Statement of Income and Expenses

For Period April 1, 1944 to March 31, 1945

Income

Income—General Account:		
Membership Dues—1944-1945	$23,358.19	
Membership Dues—Prior to 1944	433.50	
Membership Dues—In Advance	116.00	
Fellowship Certificates	235.00	
Membership Certificates	87.00	
Biographical Directory	89.36	
Donations	100.00	
Rent—Committee on Psychiatric Nursing	700.00	
Interest—Savings Accounts.	232.58	
Interest—U. S. Government Bonds	375.00	
Interest—Canadian Bonds.	48.75	
Insurance Refunds	94.01	
Total Income—General Account		$25,869.39
Income—American Journal Psychiatry:		
Subscriptions	$13,271.21	
Advertising	4,556.87	
Back Numbers		
Centenary Issue . $113.37		
Other Issues 830.92		
	944.29	
Miscellaneous		
Hurds $58.50		
Reprints 33.75		
Colloquial 2.78		
	95.03	
Total Income—Journal Account		18,867.40
Annual Meeting—Philadelphia, Pa.:		
Annual Banquet Tickets	$4,625.00	
Commercial Exhibits	3,508.80	
Registration	1,100.00	
Sale of Programs	14.75	
Subsidy—American Psychiatric Association	500.00	
Total Income—Annual Meeting		9,748.55
Total Income		$54,485.34

Expenses

Expenses—General Account:		
Salary—Executive Assistant	$5,616.66	
Clerical Salaries	4,801.23	
Printing—Directory of Members $1,627.11		
Others 613.76		
	2,240.87	
Committee Expenses (Schedule Attached)	4,478.96	
Rent	1,717.20	
Postage	751.22	
Insurance and Annuities	558.62	
Old Age Benefit Expense	69.79	
Check Taxes	46.24	
Travelling Expenses—A. M. Davies	180.80	
Fellowship Certificates	10.58	
Telephone and Telegrams	20.45	
Electricity	73.92	
Office Supplies	93.18	
Membership Certificates	200.33	
Miscellaneous	450.63	
Subsidy—Annual Meeting.	500.00	
Total Expenses—General Account		$21,810.68
Expenses—American Journal of Psychiatry:		
Journal Printing Vol. 100—Nos. 5-6-7; Vol. 101—Nos. 1-2-3-4	$16,276.30	
Miscellaneous Printing	100.34	
Editorial Assistance	938.03	
Medical Publication Bureau Advertising Commissions.	1,251.75	
Mailing and Promotional Expense	157.14	
Rent	200.00	
Telephone	249.62	
Postage	285.82	
Mailing Back Numbers	164.18	
Check Tax	6.95	
Miscellaneous Expense	28.67	
Total Expenses—Journal Account		$19,658.80
Expenses—Annual Meeting—Philadeplhia, Pa.:		
Commercial and Scientific Exhibits	$1,153.12	
Final Programs	818.71	
Postage	106.50	
Annual Banquet	3,474.40	
Portrait and Banquet Menus	122.62	
Centennial Song	61.25	
Play	1,026.64	

Orchestra—Banquet	270.00	
Singer	10.00	
Philadelphia City Tax—Banquet	64.75	
Amplifying Set Up	377.21	
Recording Service	67.00	
Detective Agency	120.00	
Tips	204.00	
Movies and Slides	168.50	
Badges and Ribbons	161.06	
Registration Cards and Signs	58.08	
Awards	58.50	
Prints	40.00	
Reporting	52.20	
Printing	25.25	
Telephone	23.51	
Expressage	22.23	
Honorarium—Guest Speakers	63.60	
Travelling Expenses	412.40	
Ladies Committee—Tea	235.00	
Committee on Arrangements	250.00	
Committee on Public Education	7.00	
Council Meeting	208.95	
Board of Editors Meeting	49.50	
Committee on Publicity	88.00	
Miscellaneous	72.76	
Total Expenses—Annual Meeting		$9,872.74
Total Expenses		$51,342.22
Excess of Income Transferred to Surplus		$3,143.12

SCHEDULE OF CASH AND RESOURCES

March 31, 1945

	Book No.	Balance
Chase National Bank		$3,526.43
Union Dime Savings Bank	1,115,778	4,396.35
Emigrant Industrial Savings Bank	137,048	4,412.04
Bowery Savings Bank	258,266	4,649.81
Manhattan Savings Bank	3,557	4,409.32
Total Cash Balances		$21,393.95

Net Resources

American Psychiatric Association (as above)	$21,393.95
U. S. Government Defense Bonds	15,000.00
Canadian Government Bonds	3,057.00
AMERICAN JOURNAL OF PSYCHIATRY—Chase National Bank	4,572.99
Meeting Account—as per statement as per July 15, 1944	31.35
Net Resources Available	$44,055.29

Reconciliation of Surplus Account

Surplus, April 1, 1944	$40,912.17
Excess of Income for Year Ended March 31, 1945	3,143.12
Surplus April 1, 1945	$44,055.29

ANALYSIS OF COMMITTEE EXPENSES

March 31, 1945

	Total	Clerical	Travelling and meetings	Telephone, postage and printing	General
Executive	$2,911.34	$120.00	$2,769.50	$21.84	....
History of Psychiatry	8.59	....	....	8.59	....
Board of Examiners	49.45	....	....	49.45	....
Public Education	117.33	....	....	117.33	....
War Psychiatry	33.93	....	....	12.78	$21.15
Program	429.20	97.55	291.62	40.03	....
Centenary	403.56	....	403.56	....	....
Psychiatric Nursing	19.99	....	....	....	19.99
Psychiatry in Armed Forces	23.95	....	23.95	....	....
Section on Psychoanalysis	34.10	....	....	....	34.10
Section on Forensic Psychiatry	26.90	....	....	26.90	....
Psychiatric Standards—Policies	371.63	....	371.63	....	....
Arrangements	14.92	....	....	14.92	....
Section Psychopathology of Childhood	7.29	....	....	7.29	....
Legal Aspects of Psychiatry	26.78	20.60	....	6.18	....
Totals	$4,478.96	$238.15	$3,860.26	$305.31	$75.24

Respectfully submitted,
FREDERICK S. PARSONS,
Auditor Accountant.

CORRESPONDENCE

Editor, AMERICAN JOURNAL OF PSYCHIATRY:

SIR: Allow me to communicate to you, as the Editor of the JOURNAL, some comments concerning the book review of "The Concept of Dread" by Søren Kierkegaard. The review was written by Dr. Abraham Myerson and published in the May 1945 issue of the JOURNAL (p. 839).

If Søren Kierkegaard were not one of the few outstanding psychological writers of the 19th century, the review in question would perhaps be of no particular significance, aside from demonstrating how difficult it is for modern scientists to do justice to a writer who stands outside the orbit of their accustomed way of thinking. As it is, a review of this kind in my opinion does harm to the standing of American psychiatry.

Dr. Myerson's review, it seems to me, is an example of the attitude of omniscience we psychiatrists unfortunately have become accustomed to assume toward everything and everybody crossing our paths.

Dr. Myerson declares at the end of his brief review that "it is perhaps unfortunate" that he is "no theologian or philosopher." If he were he "might possibly be able to understand what the author has in mind and what he is seeking to demonstrate." "All I can say as a humble psychiatrist," he continues, "is that there is a psychiatry of religion and theology which merits a very large and important book." It would seem that psychiatrists, like other people, ought to be in a position to "understand what the author has in mind and what he is seeking to demonstrate," before they write reviews or books about an author.

Name-calling, even psychiatric name-calling, has never proved anything. The reviewer, in spite or perhaps because of his statement that he does not understand the author, declares that the "book is a schizoid and certainly utterly incomprehensible presentation by a mind which is quite deviate." He also states that "the writer is a psychiatric case himself," corroborating this by quoting the translator of the book whose statement shows, more than anything else perhaps, the confusion which has been created in lay circles by psychiatric labels.

There can be no doubt that the review gives the reader to understand that Kierkegaard's book is the incomprehensible expression of a deviate mind and worthy of attention only as the documentation of mental illness, and because in spite of that Kierkegaard "has received much scholarly attention." If I understand the reviewer correctly, he shows concern over the fact that, being a psychiatric case, Kierkegaard's writings "have the dignity of publication by the Princeton University Press."

Have we come to the point where it is believed that only what is readily understood by a psychiatrist, be it philosophy, theology or any other subject, is comprehensible? Are psychiatrists the supreme judges to decide what are and what are not relevant, comprehensible or important ideas and thoughts? Is mental "deviation," granted for the sake of argument that Kierkegaard had a deviate mind or was schizoid, necessarily proof against the validity or relevance of ideas expressed by the mentally ill?

Dr. Myerson makes no attempt at giving an account of what the author of the book may want to say, but quotes at random in order to demonstrate Kierkegaard's mental deviation. The reader of the review is confronted with two passages, taken out of their context, which undoubtedly show that the language and thought processes of the author are hard to follow. Kierkegaard was trained in the philosophical school of Hegel who was one of the most difficult philosophical writers of all time (which does not mean that he was incomprehensible or mentally ill). Kierkegaard in his book is concerned with the problems of dread (or anxiety; the Danish work is *Angest*, the German *Angst*) in connection with guilt and sin. In both passages quoted by Dr. Myerson he deals with the question to what extent psychology can contribute to the understanding of these concepts, and he asks from what point of view psychology

may be concerned with them. He points out that "the mood of psychology" is that of persistent and dauntless observation and curiosity. This scientific "mood" has its place, but according to Kierkegaard who was a convinced Christian it is not the mood in which man can deal with or understand sin adequately. In other words, Kierkegaard is conscious of the fact that sin is a religious concept and not a scientific one, that the concept of sin implies a certain religious interpretation of man's fallibility. He says the "correct mood" to deal with sin "is the stouthearted opposition of seriousness," that is a religious-ethical attitude toward what he conceives as man's sinfulness. The "antipathetic curiosity" of psychology stems from a mood or attitude which does not acknowledge sin but stands outside of such an interpretation of man, on a ground different from that which makes the concept of sin possible.

Kierkegaard points out, furthermore, that the "mood of psychology" is "the dread corresponding to its (the sin's) discovery." To translate this into more familiar language: psychology (and science in general) as a human undertaking has its roots in man's anxiety which drives him again and again into "the persistence of observation, the dauntlessness of the spy," the anxiety corresponding to man's awareness of his limitations and fallibility. In other words, Kierkegaard raises the question of the place and origin of psychology and science as such within the life of man, a problem worthy of attention even in our enlightened century. Kierkegaard ridicules the man of science who "with his zeal to explain humanity as a whole" forgets himself and the problem of his own place in the scheme of things.

"The Concept of Dread," in summary, is written in difficult language and expresses complex thoughts. The author does not take for granted that science furnishes or is capable of furnishing ultimate answers to all problems, or that common sense is always the appropriate approach to them. The book cannot be understood without some acquaintance with the author's philosophical background, nor without openmindedness concerning religious premises. It requires active thinking, and thinking along unfamiliar lines. It cannot be recommended as easy reading matter for psychiatrists and was never intended as such. The style is often odd and the ideas are frequently expressed with fanatical vigor. Kierkegaard was an original thinker whose psychological insights, aside from any other merits he may have, are recognized by those who understand him as of prime importance in the development of modern psychological thought.

Sincerely yours,

H. W. Loewald, M.D.

Dr. Myerson's Reply

Editor, American Journal of Psychiatry:

Sir: Let him who is interested in the facts of the situation and the justness of my point of view read Kierkegaard's book. A prolonged controversial reply will merely be a duplication of what I stated in my review. The translator states definitely that Kierkegaard suffered from a mental disease or sickness, and this, I believe, is borne out by the book itself.

To the statement which I myself make, that I am neither theologian nor philosopher, there is the counter-statement that I have read and understood most of the philosophers from the Greek writers down to those of our own day, including Kant and Hegel. Moreover, I have read with great interest and comprehension the works of such theologians as St. Augustine, St. Thomas Aquinas, as well as Maimonides, Jonathan Edwards and others of like reputation and standing. Whether one agrees or not with the point of view of these great men, it is logically and sequentially expressed; there is a beginning and end to the exposition and the first sentence of a paragraph will relate to the last sentence as part of an organic unity.

As a reviewer, I speak only for myself, and to me this book has no logic, and its contents bear no relationship to its title.

Very sincerely yours,

A. Myerson.

COMMENT

THE PROGRAM OF THE 1946 MEETING

The annual meeting of the Association will take place in Chicago in May of 1946 and the program committee is in the process of organizing plans for the scientific sessions. In keeping with the usual procedure the committee expects to meet in mid-December to consider requests for the presentation of papers and to complete a preliminary draft of the program. In order to prepare adequately for such a consideration *we must have the titles and preliminary abstracts of the papers before December 1, 1945*. For a number of reasons this is even more urgent this year than it has been on previous occasions. The postponement and eventual cancellation of the 1945 meeting has created an unusual situation. Not being certain whether the meeting would take place or, if it did, on what date it would be held, the committee had to proceed with plans on a tentative basis and has actually succeeded in preparing a complete program for the meeting which, to our own regret and the natural disappointment of the prospective readers, did not take place. Some of the authors have eventually withdrawn their papers, feeling that the material was of a type that had to be published before 1946.[1] Others, however, have expressed their wish to have the papers held over for the 1946 meeting. As a result we have at present a number of abstracts of papers which were to have been presented at the 1945 meeting. These papers will, of course, have to be reconsidered at our mid-December conference. Members who wish to offer new papers for presentation at the 1946 meeting must, therefore, send the abstracts in as soon as possible so that they may receive consideration along with those mentioned above.

In the final formulation of the plans for this year's meeting, however, the committee will have to be guided by another consideration. These are days when problems of great importance are continually coming up for investigation and papers dealing with such problems may prove to be of more immediate importance than some of those that we have on hand. The recent events throughout the world have brought to the fore a number of questions which the psychiatric profession must consider very seriously. Veteran rehabilitation and postwar civilian readjustment; factors introduced by industrial reconversion; psychiatric experiences in the war, which for obvious reasons, we have not previously been able to discuss as adequately as would be desirable; various therapeutic discoveries that may be applicable to civilian problems, are just a few of the topics that have received a great deal of attention in recent investigations and the Association as a whole should become aware of their results. At the same time there are other fields which will open up now that the war is over and we can look forward to the return of those of our workers that were in the armed services. Postgraduate teaching and training of those who wish to enter the field of psychiatry or who wish to take refresher courses in civilian psychiatric practice, more adequate means of intercommunication between psychiatric workers, new fields of research and the consideration of revisions in our nomenclature, all must receive attention at this time.

It is quite obvious that the committee will have to work hard in choosing the material which will be of most value to the Association as a whole in view of the present situation. At the mid-December meeting decisions on the acceptance of most of the papers will be made and therefore we wish to urge all prospective readers to send their abstracts and titles to the committee as early as they can and not later than December 1.

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MARIHUANA

Marihuana has excited considerable interest in the United States during the past fifteen years. It is thought by some to cause considerable crime and mental and physical deterioration, while others have been unable to detect any harmful effect from its use. There has been considerable propaganda about it and, as usual in such cases, some feeling has been aroused by the opposing points of view. These views can be reconciled if we disregard the outpourings of uninformed propagandists and bear in mind that law enforcement officers naturally tend towards exaggeration because they are looking for evil, while the scientists who are in search of facts take pride in presenting facts as they find them.

Marihuana has been known for its effects for at least 3,000 years. It is the most intoxicating of all the drugs that man has widely used to obtund or stimulate his senses so that through forgetfulness or stimulation he could enjoy life more than in his normal state. Authors of ability have taken the drug either experimentally or habitually and have written extensively about the effects it had upon them. In Eastern countries where use has been extensive, there have been reports of much psychosis caused by it. Its effects have been studied and reported by three official bodies: by the Indian Hemp Drugs Commission in 1893; by military and health officers in Panama in 1933; and by the Mayor's Committee on Marihuana in New York in 1944. Extensive studies, most of the findings of which have not been published, have been carried on for several years at the Public Health Service Hospital at Lexington, Kentucky.

The three published studies minimize the effects of marihuana as a crime producing agent and as a cause of physical and mental deterioration, but no conclusion is drawn that the drug may not cause crime and disease.

The intoxication produced by marihuana differs from that produced by alcohol, mainly, in that in some stages of intoxication there is a state of anxiety with vague fears, but as with alcohol, inhibitions are released, confidence is increased, efficiency decreased and somnolence finally comes on. The marihuana subjects tend to be garrulous, but are seldom irritable. Many of them have a pleasant sensation of drifting and floating away. An important finding in the New York study was the occurrence among the 72 prisoners of the experimental study of six toxic episodes lasting up to ten hours and three cases of marihuana psychosis. The latter occurred in markedly predisposed individuals. There was no evidence of physical deterioration in any member of the group, although some of them had used the drug for years.

With recent findings, coupled with our previous knowledge of marihuana, one may attempt an evaluation of its disease and crime producing properties. Perhaps the most effective way to do this is to compare it with alcohol. The forty million estimated drinkers in the United States commit while drunk several thousand serious crimes each year, including murder and sex crimes and are responsible for much disorder of a less serious nature. The toll is large, but compared with the total number of drinkers, the number of serious crimes directly traceable to alcoholic intoxication is small and it would be easy to find groups of one hundred or more drinkers who commit no crimes.

The bizarre marihuana intoxication with anxiety and frequent toxic episodes is certainly a condition of irresponsibility equal to, if not more serious than, that produced by alcohol. It would be hazardous to assume the persons in this state may not commit crimes. In fact, there have been several authentic instances of marihuana crimes in the United States. That there have been so few as compared with those due to alcohol is easily explained on the basis of mathematics —several thousand users, against forty million.

As to physical deterioration, marihuana increases appetite and it supplies no calories as does alcohol. We may, therefore, expect it to be free of vitamin deficiency types of mental and physical deterioration so common in alcoholics. Just what the frequent toxic episodes in marihuana users may mean for permanent mental deterioration is not known, but the possibilities cannot be ignored. This phase of the problem needs to be further studied.

We may sum up the general situation by saying that marihuana is a potentially dangerous drug that does very little harm in the United States because it has been so little used. A potent marihuana cigarette, properly smoked, has about the same effect as one or two highballs. But, considering the relative availability of the two drugs and the unpleasant features of marihuana intoxication, persons inclined to be alarmed about what harm marihuana may be doing here should reflect that in relation to alcohol it stands in the order of about 1 to 10,000. Restrictive marihuana laws may be depended upon to keep this ratio more or less constant.

LAURENCE KOLB.

NOTICE

OPENING FOR DIRECTOR, BUREAU OF CHILD GUIDANCE, NEW YORK CITY.—The Superintendent of Schools, New York City, is receiving applications for the position of Director of the Bureau of Child Guidance. Qualifications include: age 30-50 years; a doctor's degree in the field of education with 8 years' teaching and clinical experience; or graduation from a medical school, a license to practice medicine in the State of New York, 5 years of practice in institutional psychiatry, 1200 hours' experience in clinics for the study and treatment of personality and behaviour disorders of children and 3 years' supervisory experience in a child guidance clinic in a school system. Salary $12,000 per annum. Particulars may be obtained from Associate Superintendent in charge of Personnel, Room 510, 110 Livingston Street, New York. Applications must be filed on or before January 2, 1946.

NEWS AND NOTES

STATE OF WASHINGTON MENTAL HEALTH CLINICS.—The Washington State Department of Health has announced the appointment of S. Harvard Kaufman, M. D., as head of the mental hygiene section. Dr. Kaufman has previously served as senior psychiatrist of the Mental Health Clinic of the Western State Psychiatric Hospital, Pittsburgh, Pa.

Under Dr. Kaufman's direction mental hygiene clinics serving the larger communities in the state are being organized. It is planned that intake emphasis will be on veterans and children but services will be available for everyone including the juvenile courts. The program of the several clinics will be primarily therapeutic and secondarily diagnostic.

Applications are being received for psychiatric social workers, psychologists, and psychiatrists who have had special training in child guidance or/and mental hygiene. For information, please write to S. Harvard Kaufman, M. D., Head, Mental Hygiene Section, State Department of Health, 320 Smith Tower, Seattle 4, Washington.

LETCHWORTH VILLAGE.—The 37th annual report of Letchworth Village, Thiells, N. Y., gives some interesting bits of history. The Village which was established during the term of office of Charles Evans Hughes as Governor of the State of New York was named by the legislature in honor of William Pryor Letchworth, for 25 years president of the State Board of Charities and donor to the state of his home "Glen Iris" and the falls of the Genesee River; and it was during the administrations of Alfred E. Smith and Franklin D. Roosevelt that the larger part of the Village was built. The research laboratory was established and supported by Mrs. E. H. Harriman until it was taken over by the state. The Village has had a distinguished history and a world wide reputation. It was organized by Charles S. Little, M. D., Sc. D., who also acted as superintendent for 25 years. Harry C. Storrs, M. D., has held the post of medical director since 1937.

In the present 1945 report it is pointed out that, although overcrowding has reached 30 percent above the rated capacity of the Village and shortage of staff continues acute, the schools and occupational therapy classes have been conducted as usual, making possible the development into skilful workers of many children with low I. Qs. The State Post-War Planning Commission has approved for construction at the Village a new babies' building, 4 infirmary buildings for low grade cases as well as other improvements. The new parkway which will be built from the George Washington bridge to Bear Mountain park will overlook the Village.

The report stresses the need for post-war additions to the existing state schools for the feebleminded as well as for the construction of a new institution.

CORRECTIONAL AND REHABILITATION WORK. LUCKNOW, INDIA.—Reports by Lt.-Col. A. H. Shaikh, C. I. E., I. M. S., Inspector-General of Prisons Lucknow United Provinces, cover operations of the Reformatory School at Lucknow for the period December 1941–December 1944, and of the Juvenile Jail at Bareilly for the period 1939-1944. The program of these two institutions consists of a study of the personality of each boy, psychotherapy when required, training in a trade or profession within the School or Jail, employment in outside factories with money earned placed to the credit of the boy, financial assistance in regard to equipment for hobbies, for the purchase of raw materials and for travelling expenses to visit their own homes, and assistance in securing employment after release.

The Juvenile Jail which has accommodation for 180 boys receives first time offenders who are transferred from other jails. The age range is from 15 to 19; the sentence varies from one year to life; and the maximum age for retention is 23. Of the 241 boys who passed through the Juvenile Jail

during the years 1939-1944, all had an opportunity to work in outside factories and return to the jail at the end of a day's work; there was only 1 escape. Follow-up histories were obtained on 154 boys of the 187 released during this five-year period and only 7 were in the hands of the law.

The Reformatory School receives direct from a magistrate boys who are without parental control, who are found guilty of thefts and who, in the majority of instances, have had more than one conviction. Maximum age of admission is 14; period of detention is not less than 3 years and not more than 7 years; and the maximum age of retention in school is 18 years. Accommodation is provided for 91. Of 107 boys dealt with during 1943 and 1944, 45 had both parents alive; 57 reported harsh treatment during early childhood; 98 were deprived of the bare necessities of life; and approximately 10 percent were mentally deficient. Within this particular group, it is reported that there is an extreme, deep-seated and inhibited form of hostility against society accompanied by a feeling of revenge, which generally takes the form of acquisition. The psychoneurotic may combine revenge with a strong sense of guilt and need for punishment wherein he may punish himself with remorse or willingly submit to legal punishment after which he feels free to resort to delinquency again. Through the winning of the co-operation and affection of the boys, through socialization, work and the awakening of team spirit; through offering the boys a home and financial aid, the feeling of insecurity is reduced resulting in a preponderance of assets and relative reduction in liabilities.

SEMINAR IN NEUROLOGY AND PSYCHIATRY.—The eleventh Graduate Seminar in Neurology and Psychiatry will be conducted at the Metropolitan State Hospital, Waltham, Mass. from October 1 to December 10, 1945, and from January 7 to April 22, 1946.

The program consists of eighty-one two hour lectures, demonstrations and round table conferences in anatomy, applied physiology, pathology and roentgenology of the nervous system, clinical neurology, psychopathology and psychiatry. The Seminar is held on Mondays, in three two hour sessions from two to ten p.m., and is open to all graduate physicians.

Dr. William C. Gaebler, superintendent of the Metropolitan State Hospital, is director of the Seminar.

DR. WINIFRED RICHMOND DIES.—Dr. Winifred V. Richmond, well known psychologist and writer, died recently in Sante Fe, New Mexico. Born in Elizabeth, West Virginia, in 1876, she received a B.S. degree from Ohio University in 1910, an M. A. degree in 1915 and a Ph.D. degree in 1919 from Clark University. Dr. Richmond taught in grade, high and normal schools; served as psychologist at the Walter E. Fernald School for the Feebleminded at Waverly, Mass., and the Lander State Training School, Wyoming; and for 21 years was chief psychologist at St. Elizabeths Hospital.

Dr. Richmond had a world wide reputation as a writer. Among her best known publications are "The Adolescent Girl", "Making the Most of Your Personality", "The Adolescent Boy", and "Psychological Studies in Dementia Praecox". At the time of her death, she was collaborating with Dr. Winfred Overholser on a psychiatric textbook for laymen. Dr. Overholser spoke of her as "one of the soundest, best-balanced, wisest people" ever on the staff of St. Elizabeths Hospital.

REPORT ON MENTAL HYGIENE IN OHIO.—The Cleveland Mental Hygiene Association in its July-August publication draws attention to the action taken by Ohio's 96th General Assembly in putting into effect a state mental hygiene program. While some $17,000,000 was appropriated for "additions and betterments" at mental hygiene institutions, nearly $4,000,000 will have to be used for rehabilitation and general repair of the physical plants. The money provided will allow for only 6000 new beds although 18,000 are urgently required, and there is no provision for special institutions for mental defectives and psychopathic offenders. An appropriation of $1,190,000 was made for additional facilities at the Mt. Vernon Sanitarium to care for mentally ill patients with tuberculosis. Appropriations

will permit the construction or purchase of receiving hospitals in Cleveland, Cincinnati, Akron and possibly Columbus (as part of the $5,000,000 Ohio State University Medical Center approved by the Legislature). Operating expenses are not included in the appropriations and, although an additional $277,000 over the 1944 expenditures was appropriated for personnel in the State Welfare Department, this will not meet the needs whereby the state institutions could be brought up to recognized standards. A request by the State Welfare Department for $50,000 to establish mental hygiene clinics which are an integral part of any state program was stricken out. Two laws enacted provide for the establishment of classes for slow learners in public schools with reimbursement of a part by the State Dept. of Education and authorization for the State Department of Education to underwrite the cost of educational programs for all epileptic children who are not mentally defective. While the General Assembly has gone a long way toward improving conditions in the state, there are many important areas in which changes are greatly needed before Ohio can take a significant place along with other states in the prevention, treatment and care of mental illness.

Death of Dr. Aldren Turner.—Dr. William Aldren Turner, distinguished neurologist, died in England on July 21 at the age of 81. Educated at Fettes and Edinburgh University, he became house-physician at the Edinburgh Royal Infirmary in 1887; took the Edinburgh M.D. with gold medal in 1892 and the M.R.C.P. Lond. in 1899.

In 1892, he became associated with the neurological department at King's College and, in 1908, was appointed physician in charge of neurological cases and lecturer in neurology in the medical school. Aldren Turner was on the medical staff of the West London Hospital and from 1900-07 physician to the National Hospital, Queen Square. In 1910, he delivered the Morison Lecture at the Royal College of Physicians of Edinburgh and, in 1918, the Bradshaw Lecture at the Royal College of Physicians of London. From 1914-18 he made a special study of nervous and mental shock; from 1915-19 was neurologist to the Forces at home; from 1919-40 was neurologist to the War Office Medical Board; and 1920-21 was a member of the War Office Committee on Shell Shock.

Dr. Turner will be remembered by his many contributions to our scientific literature among which are "Epilepsy, a Clinical Study" and, jointly with Dr. Grainger Stewart, "Textbook of Nervous Diseases".

Journal of Gerontology.—It is announced that a new journal dealing with the problems of aging will begin publication early in 1946 under the auspices of the Gerontological Society, Inc. *The Journal of Gerontology,* which will appear quarterly, will fill an important gap in current medical literature. The Editor-in-Chief is Dr. Robert A. Moore, Washington University School of Medicine, St. Louis. Chairman of the publication committee is Dr. Roy G. Hoskins, Harvard Medical School.

Training in Psychiatric Social Work.—The War Office of Psychiatric Social Work calls attention to the present and future need of greater numbers of psychiatrically trained social workers in veterans and civilian hospitals and clinics, social and health agencies and industry, and invites correspondence from men and women released from the armed services and others who may wish to consider professional training in this field.

Schools of social work are conducted by a number of universities in all parts of the United States, courses in psychiatric social work ranging from 16 to 21 months. Salaries for qualified graduates vary from $1800 to $5000. Information about schools, courses, etc., may be obtained from War Office of Psychiatric Social Work, 1711 Fitzwater St., Philadelphia 46, Pa.

Death of Dr. Spearman.—One of the world's most prominent psychologists, Dr. Charles E. Spearman, Professor Emeritus in the University of London, died at the age of 82, September 17, 1945.

Dr. Spearman is perhaps best known for his investigations on the essential nature of intelligence and for his description of the "general" or "G-factor," which earned for

him the popular title—the G-man of psychology.

In World War I he is reported to have been the first scientist employed by the government to make a study of the endurance qualities of soldiers under stress of battle. He was publicly thanked by the Admiralty and was awarded a medal for his contribution.

A native of London, Dr. Spearman had been on the faculty of the University of London since 1911.

TAVISTOCK CLINIC.—A letter recently received from Brigadier J. R. Rees, consultant in psychiatry to the British army, announcing his return to civil life, reports the efforts that are being made to rehabilitate the Tavistock Clinic. He states:

"The clinic is at this moment in the process of moving out of Westfield College, Hampstead, since the college is returning to London, and we have bought the lease of a reasonably adequate building at 2 Beaumont Street, W.1. which used to be a fairly large nursing home. Of course, having lost nearly all our furniture in the blitz we are going to find the greatest difficulty in getting together any kind of furniture for the place, and we shall definitely not have anything to show people in the outward way of our equipment for a very long time. The library is just being got out of its boxes, or at least what remains of it. You may remember that early on in the war when our premises in Melet Place were hit, I told you that a good many of the books, and particularly those on psychopathology and anthropology had been lost by theft and by act of Goering."

Dr. Rees and his staff will be very grateful to any one who may have reprints, books or periodical literature in the field of psychiatry which they can contribute toward the restoration of the library of the Tavistock Clinic.

AN ABSTRACTING SERVICE FOR HUMAN BIOLOGY.—The Trustees of *Biological Abstracts* announce the establishment, beginning in January, 1946, of a new section of *Biological Abstracts*—Section H, specially assembled Abstracts of Human Biology—intended for anthropologists, sociologists, psychologists, neurologists and psychiatrists, students of child development and human welfare, and students of man generally.

The new section will be an assemblage of all abstracts published in *Biological Abstracts* dealing with the broad field of human and social biology. Biological studies on human inheritance, on population and fertility, on endocrine and neurological factors affecting growth, development and human personality, on alcoholism and drug addiction, and on nervous disorders and mental deficiencies, and broad nutritional and epidemiological studies affecting human welfare, are some of the many fields that will be covered.

The annual subscription price for the ten abstract issues, plus the complete index of the year's volume of *Biological Abstracts* will be $6.00 ($6.50 outside the United States). Full information may be obtained by writing to Mr. H. I. Anderson, Business Manager, Biological Abstracts, University of Pennsylvania, Philadelphia 4, Pennsylvania.

SOCIOPSYCHOLOGICAL MEDICINE.—Dr. Harry Woodburn Chase, chancellor of the New York University College of Medicine, announcing plans for expansion of the teaching program in the college as outlined by the acting dean, Dr. Donal Sheehan, postulates "full recognition of medicine as a social science, with the emphasis, both in the teaching and in practice, upon the environmental and psychologic aspects of illness."

The report further states: "Throughout the medical course, emphasis will be placed on the social and psychologic causes of illness and upon the effects of living and working conditions on human welfare. These factors are coming to be the chief cause of ill-health in modern urban communities. To give the doctor breadth of view, he must also know something of the history, ideals and the economic problems of medicine. To offset the tendency to make the modern doctor a mere technical specialist, a new department dealing with the humanities in relation to medicine is projected."

BOOK REVIEWS

THE MARIHUANA PROBLEM IN THE CITY OF NEW YORK. By *The Mayor's Committee on Marihuana.* (The Jacques Cattell Press, 1944; The Livingston Press, Livingston, New York.)

Alarmed by reports about marihuana addiction in New York, the Mayor of the city sought the advice in 1918 of the New York Academy of Medicine, and on its recommendation a committee known as the Mayor's Committee on Marihuana was appointed by the Mayor to study the matter. This Committee, after carefully reviewing the problem, set up an organization of competent physicians and other scientists to study various phases of the problem, including the sociological, general medicinal, psychiatric, psychological and pharmacological aspects of it. The study was financed by three Foundations, the Academy of Medicine and The Research Council of the Department of Hospitals.

Full cooperation of various city departments was secured. The clinical studies were made at the Goldwater Memorial Hospital on 72 subjects from three city prisons. The sociological studies were carried out with the aid of six young police officers, selected for their intelligence. Two were women, one was a negro and all were given special training for the work intended of them. They posed as "suckers" from out of town and as students in colleges and high schools so as to allay suspicion and gain access to marihuana circles. They were not allowed to make arrests.

The sociological studies gave special attention to places, means and extent of use, to the mental attitude of the marihuana smoker, to sex, crime and schools. The main conclusions are that marihuana is extensively used in New York, mostly by negroes and latins; that the sale and distribution is not under the control of a single organized group; that no effort is made to create a market by stimulating the practice of marihuana smoking; that marihuana is not a determining factor in the commission of major crimes; that smoking is not widespread among school children; that juvenile delinquency is not associated with it; and that the publicity concerning the catastrophic effects of marihuana smoking in New York is unfounded.

For the clinical studies the subjects were brought to the hospital in small groups and stayed for from four to six weeks, during which time they were given marihuana as cigarettes for smoking or as a specially prepared preparation by mouth. In the group of 72 studied, 48 had been marihuana smokers; the rest had never used the drug in any form. Numerous tests of a medical and psychological nature were made on the subjects while they were under varying doses of the drug. On most of the tests non-users were affected more than users, but both were profoundly affected emotionally, intellectually and physically when doses sufficiently large were given. As was to be expected the drug increased confidence, decreased efficiency and gave a pleasant sense of relaxation, often with a sensation of drifting and floating away. Excessive talking was common, irritability was uncommon, and some subjects became anxious at a certain stage of indulgence.

From the psychiatric studies, the conclusion was reached that the drug may bring on a true psychotic state in predisposed individuals, but the comprehensive psychological study of this series of cases led to the conclusion that indulgence does not appear to result in mental deterioration. It apparently had not had any deleterious effect on the 48 who had used the drug for varying periods of time.

This is a comprehensive book with a wealth of objective data on the effect of marihuana presented by competent investigators on the basis of their own study of cases and conditions in New York. The literature on marihuana is also briefly reviewed. The book should remove much of the thinking on marihuana from the realm of fantasy and place it on a sound basis. We commend it to everyone who is in search of facts about the marihuana problem.

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ON MEASUREMENT OF MOTOR SKILLS. By *Elinor M. Schroeder.* (New York: King's Crown Press, 1945.)

This monograph bears the sub-title: "An Approach through a Statistical Analysis of Archery Scores," but it is never made quite clear what is being approached. The presentation of archery scores and their comparison are all that is contained in the report. There are some implications of future plans for correlation of archery scores with achievements in other lines of endeavor, but this is merely indication of a plan for future work.

The author's claims that archery scores are suitable for statistical treatment may be summarized in three points: 1. Archery is a well established sport, in which tournaments are conducted under standardized conditions. 2. The scores are objective and are recorded as the arrows are withdrawn from the target. 3. There are standardized methods of instruction for learners of archery.

The archers whose scores are utilized were apparently all students at Wellesley College. These are divided into three groups, designated as Beginners, Intermediates and Advanced. This division seems to have been largely based on the lengths of periods of instruction and practice; but it is implied that there was selection of the advanced group on the basis of success in attaining scores.

Three standard ranges (distances from the target), of 30, 40, and 50 yards were employed. For each range 24 shots constituted a "round"; a round

at each of the three ranges constituted a "lesson," and 12 lessons made up a "series." The weekly distribution of lessons is not indicated, and although a drop in scores between series is revealed, the interval between series is not indicated. The number of archers was not uniform for all ranges or groups, being as follows:

I. *Beginners:*
30 yd. range, 236
40 yd. range, 257
50 yd. range, 203

II. *Intermediates:*
30 yd. range, 130
40 yd. range, 138
50 yd. range, 127

III. *Advanced:*
53 for each of the three ranges.

The author seems to assume that readers are experts in the field of statistical methods; but since many psychologists are not experts in that field, and probably fewer psychiatrists are expert statisticians, it would have helped if the technicalities represented by the terms and formulæ had been explained more fully.

The reviewer makes no claim to expertness in statistics, hence criticisms of statistical methods employed will be restricted to practical points. The data are presented as group averages, with standard measures of variation; but presentation of the ranges of variation for the groups would have been helpful, since no measure of variation tells the whole story. Improvement in scores was measured in two ways; for each range, (distance), the average scores for rounds 1 and 2 were compared with average for rounds 6 and 7, and the average for rounds 6 and 7, and the average for rounds 11 and 12. The average scores of the first four rounds were also compared with the averages for the second four and the last four. These comparisons, however, are of group scores, and there is no reason for thinking that an "average archer" is any less fictional than is an "average rat."

Tabulation of improvement by individuals from series to series would have been helpful, especially for comparison of learning in archery with learning in other fields.

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ALCOHOLICS ARE SICK PEOPLE. A monograph for use by physicians, psychiatrists, psychotherapists, nurses, social workers, clergymen, educators, patients and relatives. By *Robert V. Seliger, M. D.*, in collaboration with Victoria Cranford; edited by Harold S. Goodwin, B. A. Baltimore: Alcoholism Publications, 1945.

In this treatise the individual drinker is addressed and dealt with in nine chapters. He is told how to find out whether he is an alcoholic, what may drive him to drink, how senseless drinking is, what he can do about it. Thirty-five "common-sense re-educational guides for the abnormal drinker" are given in the last chapter. Dr. Richards says in her introduction: *"The patient must want help,* and seek it with all his heart." (Italics are Dr. Richards'.) Dr. Woolley states in his foreword: "Alcoholics are made, not by alcohol, but by people who use it."

Alcoholics merit a lift, particularly nowadays. If this little book helps a number of them to make the grade, it has fulfilled its purpose.

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THE OUTLOOK FOR WOMEN IN OCCUPATIONS IN THE MEDICAL SERVICES. By *Marguerite Wykoff Zapolcon* and *Elsie Katcher.* United States Department of Labor, Women's Bureau. (Washington: U. S. Government Printing Office, 1945.)

Bulletin 203 (numbers 1 and 2) are two of a series of pamphlets prepared by the Research Division of the Women's Bureau, United States Department of Labor to provide information concerning available occupations for women.

No. 1, is titled "Physical Therapists"; No. 2, "Occupational Therapists." The booklets present a maximum of work in a minimum of space. They cover every phase of these two occupations from their early history to the present time and even post-war possibilities.

Sources of information include organizations, schools and the literature. The precis begins with definitions and ends with appendices covering minimum requirements for training, registration, opportunities, approved schools and hospitals. There is also a full list of references.

The body of each treatise is a statistical report on present and future needs, hours, working conditions, salaries, maintenance, age limits, etc. One cannot think of a question that is not answered in these pages.

These studies are of real value to women seeking employment, to vocational guidance teachers, psychologists and psychiatrists. The authors and the Department of Labor deserve great credit for this study.

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CONTEMPORARY PSYCHOPATHOLOGY. A Source Book. Edited by *Silvan S. Tomkins, Ph. D.* (Cambridge: Harvard University Press, 1943.)

This 600-page volume is an anthology of contemporary psychopathology and, like politics, anthologies make strange bed-fellows. The entire gamut of psychopathology is run: from the orthodox Freudian point of view through neo-Freudianism, psychopathology and psychotherapeutics based on Freudianism, and eclectic psychopathology; through the various views on psychosomatic medicine from the analytic interpretations to the strictly experimental work of Wolf and Wolff. Most pertinently, so far as this reviewer is concerned, the experimental psychopathology fathered by Pavlov and carried along by a brilliant series of experiments on all kinds of animals is given a fair share of space.

Of interest is the section on the schizophrenic psychosis which includes a completely physiological paper by Gellhorn, Feldman and Allen on "Effect of Emotional Excitement on the Insulin Content of the Blood"; a paper by Kurt Goldstein on "The Significance of Psychological Research in Schizophrenia"; and a paper by Alexander and Menninger on "The Relation of Persecutory Delusions to the Functioning of the Gastro-Intestinal Tract."

Hypnotism is apparently coming into its own again. There are some excellent papers on this subject by R. White, Lundholm and Löwenbach. Amongst the final papers of the anthology is an extremely complex, and presumably extremely important paper by J. D. Frank entitled "The Contributions of Topological and Vector Psychology to Psychiatry," which represents the attempt to make psychopathology scientific in a way comparable to physics. In the words of the author, "Topological and vector psychology attempts to describe the behavior of a person at a given moment in terms of the interplay of all the factors operating in his life space at that instant." Certainly no one can complain that this is not ambitious enough and very likely may some day be attained. . . . . There are other papers which are extremely vague and consequently very general. . . . . There is the specific paper by W. Freeman and J. W. Watts on "The Frontal Lobes and Consciousness of the Self" in which they outline the drastic and, in the reviewer's opinion, brilliant procedure by which "Prefrontal lobotomy bleaches the affective component connected with the consciousness of the self."

Praise of the catholicity of selection is a just evaluation of the labors of the editor, Dr. Silvan S. Tomkins. The volume is extremely worthwhile and should be part of the reading of every psychiatrist of whatever school. There is plenty of room for more such volumes dealing with the present-day literature of psychiatry.

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RECENT ADVANCES IN NEUROLOGY AND NEUROPSYCHIATRY. By *W. Russell Brain, M. A., D. M. (Oxon), F. R. C. P.* and *E. B. Strauss, M. A., D. M. (Oxon), F. R. C. P.* 5th Edition. (Philadelphia: The Blakiston Co., 1945.)

This 5th edition of the "Recent Advances" is again under the joint authorship of the two men who brought out the first three editions. (Brain was solely responsible for the 4th edition.) The authors allow that there are in Britain four kinds of specialists in the field that used to be called "nervous and mental diseases," namely neurologists, psychiatrists, psychotherapists and neuropsychiatrists. It is not quite clear what this latter specialist is, since they state that he is not "a kind of hybrid specialist," but at the same time they insist that all the other three professional groups should be neuropsychiatrists. The differentiation is more or less confusing to transatlantic colleagues who wonder if only the psychotherapists are interested in treatment and why it should be assumed that the psychiatrists are "chiefly interested in the psychoses."

The book deals in the main with neurological topics, including those having psychological features. From the chapter headings alone one would hardly expect to find much reference to psychiatric matters beyond those definitely bound up with neurological issues; and this explains the authors' use of the term neuropsychiatry. Whatever one's quarrel may be with this term, a survey such as the present is a most wholesome means for the psychiatrist to maintain his orientation as a physician in the down-to-earth methods of scientific medicine.

Appropriately the first chapter deals with headache. It is treated exclusively from the organic or physiologic viewpoint, and includes a discussion of histamine headache. There is no reference to the psychalgias. Then follow several chapters on intracranial lesions, meningitis, head and brain trauma. There are good sections on the history and use of electroencephalography and the treatment of head injury. The literature on the functions of the frontal lobes, on prefrontal leucotomy and on electroshock therapy is also brought up to date; and the differential diagnosis, between Alzheimer's disease and Pick's disease is discussed. The neuropathologists may debate the authors' pithy statement that "if one performed prefrontal leucotomy on a case of Alzheimer's disease one would produce the clinical picture of Pick's disease." This does not seem to be a very happy summing up of the situation and the impression is conveyed that the differentiation of these two conditions is more easily done than is usually the case. The clinician is probably on safer ground—without pretty good evidence from the encephalogram—to diagnose presenile psychosis and leave the decision—Alzheimer's or Pick's—to the neuropathologist with his microscope. In fact the authors themselves say at the beginning of this chapter that "the two neuropsychoses resemble each other semiologically so closely that it is nearly always impossible to differentiate between them *ante mortem*."

There is a useful chapter on the functions and disorders of the hypothalamus. The rôle of this organ in emotional experience and expression is disposed of in a single reference, the animal experiments of Masserman, the gist of which is: "The clinical and pathological data as to the rôle of the human hypothalamus in emotional experience are not conclusive."

Disorders of sleep and elimination, neurotropic viruses, demyelinating diseases, vitamin deficiency, peripheral and cranial nerve and muscle conditions, etc., make up the concluding chapters.

As has been indicated this book deals for the most part with neuropathological rather than with psychopathological matters. By so doing it avoids the theoretical, controversial and 'school' issues that clutter so much the more strictly 'psychiatric' writing of today. In this sense also it is a refreshing book to read. It is a 358-page volume in convenient format and illustrated.

C. B. F.